

# ***Proceedings of the Water Supply and Growth in the Clark Fork River Basin Conference***

**University Center Theater  
The University of Montana**

**March 10 & 11, 2008**

## **Conveners:**

***Clark Fork River Basin Task Force  
Department of Geography, The University of Montana  
Montana Department of Natural Resources & Conservation (Sponsor)  
Montana Department of Environmental Quality  
Montana Association of Counties***

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## **FOREWARD**

On March 10-11, 2008, the Clark Fork River Basin Task Force, the University of Montana's Department of Geography, the Montana Department of Natural Resources and Conservation, the Montana Department of Environmental Quality, and the Montana Association of Counties co-convened a conference entitled "Water Supply and Growth in the Clark Fork River Basin." The Clark Fork River Basin Task Force held the conference in order to address issues that could help the basin deal with the expected continuation of population growth and development in the basin.

Unfortunately for the basin, as the region gets more populated and development increases, the amount of water will not grow concurrently. There is a perception that ground and surface water are nearly fully appropriated in the basin and, in any case, as the demand for water increases, solutions will have to be invented in order to most efficiently serve the needs of industries and residents.

On March 10, the conference agenda was focused on introducing the basin in terms of its population, economy, and water use/supply. Legal issues involving water were also presented, including a primer on water law, and a presentation on recent legal rulings. The agenda on March 11 included three panel discussions, entitled "Who Makes What Decision in Planning for Growth," "Water Management Issues," and "Potential Sources of Water for Growth." The conference participants then broke into groups and discussed ways to improve local, state, and tribal water supply, and growth planning.

The presenters were a diverse group including members of the Clark Fork Task Force, two members of the Water Policy Interim Committee, lawyers, economists, a demographer, a Tribal spokesperson, and a well driller. The director of the DNRC opened the conference, and the Administrator of the DNRC Water Resources Division moderated one of the panels. A total of 133 individuals attended the conference as registrants, and approximately 20 other individuals including UM students and faculty, and other citizens of the Clark Fork Basin, attended certain panels.

Enclosed in these proceedings are an executive summary, a summary of each presentation, and copies of the presentations. The proceedings, presentations and audio recordings are available on-line at: [http://dnrc.mt.gov/wrd/water\\_mgmt/clarkforkbasin\\_taskforce/default.asp](http://dnrc.mt.gov/wrd/water_mgmt/clarkforkbasin_taskforce/default.asp).



## **EXECUTIVE SUMMARY**

### **Introduction**

The Clark Fork Task Force is a statutorily created basin water management group charged first with developing and then with implementing a water management plan for the Clark Fork River basin in Montana. The basin is one of the fastest growing areas in Montana and some are worried that the water supply may not keep pace with this growth.

The Task Force and other co-sponsors convened this conference to address the issues related water supply and growth in the Clark Fork River basin. The conference objectives were:

- o To explore the basic facts and issues regarding the water supply and growth in the Clark Fork River basin;
- o Discuss tools for managing both.

This executive summary, and the proceedings that follow, summarize the information presented at the conference.

### **Description of the Clark Fork Basin**

#### **Basin Location and Characteristics**

The Clark Fork River basin encompasses much of western Montana, extending as far north as the Canadian border and as far east as the Continental Divide near Butte. The basin's area is 21,833 square miles. It consists of 13 sub-basins, and the annual discharge is 14,700,000 acft. Precipitation varies across the basin, ranging from 12-120 in/yr. Precipitation is lowest in the valleys and generally increases elevation increases.

Ten counties are located either partially or wholly in the Basin. Deer Lodge, Flathead, Granite, Lake, Mineral, Missoula, Powell, Ravalli, Sanders, and Silver Bow Counties are located entirely within the Basin. In terms of population, Deer Lodge, Flathead and Silver Bow Counties are almost entirely in the Basin. Parts of Lewis & Clark and Lincoln Counties are also in the Basin.

#### **Population Growth in the Clark Fork River Basin**

The population of the Clark Fork River Basin is experiencing strong growth. In 1990, it was estimated at 266,000. Already containing over a third of Montana's people, the population of the Basin was estimated as increasing to 302,000 in 2000 (a 13.5 % increase) and to 323,000 by 2006 (which is approximately a 7% increase). It is predicted that the population will continue to grow well into the 21st Century. Missoula, Ravalli and Flathead Counties are predicted to have the highest rates of population growth. Perhaps it is without coincidence that these three counties are also the most populated in the basin. Projections were completed to determine what kind of population change the basin could expect from 2010 to

2030. Demographer Susan Ockert mentioned predictions that the Clark Fork River Basin will reach 342,780 in 2010 (a 5.8 % increase) and 454,820 in 2030, which is nearly a 30% increase from 2006. Economist Tim Bryggman mentioned that if that growth rate continued, the population of the Basin would increase to 375,829 in 2010 and 891,698 in 2060. Ravalli County is predicted to be the fastest-growing county with a 61% increase in population, followed by Flathead (40%), Lake (36%), Missoula (31%), Sanders (27%), Mineral (20%), Granite (19%), Powell (16%), Silver Bow (6%) and Deer Lodge counties (-6%). Both Silver Bow and Deer Lodge counties have negative population trends in the beginning of the prediction, which gradually trend positively toward 2030. It should also be noted that the three most populated counties (Ravalli, Flathead and Missoula) are among the top four fastest growing Montana counties.

One significant part of the population change is the difference in population growth between age groups. Between 2010 and 2030, the the 0-19 and 20-64 age groups are expected to increase in overall numbers, but the 65+ population will grow at a significantly higher rate. In Flathead County alone, the 65+ population is forecasted to increase by around 135%. From those numbers, it appears that the Basin will experience an influx of retirees, and solutions will have to be created and implemented to deal with this change in demographics. A lot of the growth occurring in the basin has been second-home growth, where people live in other houses for the majority of the year and aren't permanent residents. These people are not counted in censuses.

### **The Basin's Economy**

When analyzing the Basin's economy, government, real estate, and retail contribute the largest shares of the Basin's GDP. The largest employers are government, retail and health care, while the industries with the highest wages are in the federal civilian, utility, and mining sectors. Agriculture, oil and gas, and tourism are the largest contributors when considering total receipts. The industries that are the highest exporters in the Basin are manufacturing, agriculture, and mining. Information Technology and construction are the fastest-growing industries.

### **The Basin's Waters**

There is a slight upward trend in the basin's discharge except for the drought years. During the drought years, there is a clear downward trend in the basin discharge. There was no presentation that dealt with climatic predictions for the basin, so it's hard to say if the total discharge will stay around the average 14,700,000 acft/yr.

Based on the average annual metered water use (water use is delivery to customers and not consumptive use) by Mountain Water Company residential customers of approximately 0.24 acft per household, annual water use associated with the basin's 224,291 additional households in 2060 would be 54,264 acft. If one increases the average annual use of residential customers to 0.29 acft per household, annual water use in 2060 would be 62,071 acft.

Including "unaccounted" water with all other Mountain Water uses (unaccounted water

represents unbilled uses including system leakage, street cleaning, fire hydrant use, etc.), which is approximately 40% of the total water use, results in an annual water use per household of 0.67 ac-ft implying a potential annual water use in 2060 of 150,336 acft. The associated consumption of water may range between 15,030 and 45,100 acft. The extraction may increase 95,800 ac-ft from 2006 to 2060 with an associated increase in consumption of 9,600 acft due to the population increase. It is important to note that seasonal household water consumption use is greatest during the summer months when lawns and gardens require watering, precisely when river flows are at their lowest; the average August and September flows of the Clark Fork River below Noxon Rapids Dam near the very bottom of the basin are approximately 10,000 cfs. It is also important to note that most of the domestic and municipal water in the basin is produced from groundwater sources. These sources may be connected to nearby or distant surface water supplies, however, the nature of that connection is poorly understood. Avista Corporation has hydropower water rights at this dam for 50,000 cfs (at any given moment)!

The DNRC anticipates requesting 50,000 to 100,000 acft/yr of water from the Hungry Horse Reservoir to satisfy the needs of future growth. The request will not include water for irrigation but will focus on municipal and industrial use. In order for the allocation to happen, it must be approved by Congress.

### **Water Laws Governing the Basin**

Montana's Water Use Act codified the state's water laws. Prior to July 1, 1973, water rights were acquired by use, the filing of notices of appropriation, or by district court decree. Also, there was no pre-approval needed for changes in the use of the right. After the Act was enacted, new water rights required a permit from the Department of Natural Resources and Conservation (DNRC). If there are changes in the water use, it requires authorization from the DNRC. Exceptions to getting a permit through the DNRC includes groundwater extractions less than 35 gpm and up to 10 acft/yr, or a stock pond less than 30 ac-ft/yr on a non-perennial source serving 40 acres or more. Also, pre-1973 water rights are subject to adjudication by the Water Court.

A Montana water right can be sold independently of land. Owning water is called a "usufructory right", meaning that the property owner does not own the water itself (as all water in Montana, except tribal water, is owned by the state subject to appropriation for beneficial use), but can sell the right to use the water on said property. The right of ownership is also constitutionally protected - all water rights that were established before July 1, 1973, cannot be changed without due process of law (this is also the case for water rights acquired after this date).

Water rights in Montana can be succinctly summarized with two phrases: "First in time is first in right" and "Use it or lose it." The former phrase means that water users with an earlier priority date (senior water users) are entitled to divert their full water right before a junior water user with a later priority date diverts any water. In shortages, there is no divvying up of the existing water; the senior water user is entitled to the full amount the right allows. Any water unused by the senior water user is available to the next senior for use, and so on. There is no preference for the purpose of water use. The latter phrase relates to the fact that water right

holders must use or demonstrate intent to use water, and if they do not do this for a period of 10 consecutive years, their water right can be considered to be abandoned.

The initial decision authority on who gets issued a water right permit and if a water right can be changed belongs to the DNRC Water Resources Division. The water right permit and change authorization issuance criteria have been established in two statutes: 85-2-311 MCA for permits, and 85-2-402 MCA for changes. Statute MCA 85-2-311 states that the applicant for a permit must prove the following criteria: that water is physically and legally available; the water rights of a prior appropriator will not be adversely affected; the proposed means of diversion, construction and operation are adequate; the proposed use is a beneficial use of water; there is possessory interest in the place of use; and the water quality of a prior appropriator will not be affected. In MCA 85-2-402 for changes, the criteria are nearly identical to MCA 85-2-311, aside from proving that water is physically and legally available.

Groundwater developments with a maximum use of 35 gpm and up to 10 acft/yr are exempt from the permit process. This includes wells, developed springs and groundwater pits. The applicant has to file a Notice of Completion for groundwater development within 60 days after project completion and use of water. The criteria for issuance of groundwater certificates are proof of possessory interest in the place of use, and the applicant must show exclusive rights in the groundwater development works or written consent of the person with those rights can be obtained.

## **Water Supply Issues**

If the population grows as expected, residents and lawmakers of the Clark Fork Basin will have to make decisions on who gets what water. As stated before, the current policies might promote the growth of a water rights market, therefore perhaps driving up the price and availability of water. The 35 gpm exempt wells might come to dot the landscape even more. The issues, in terms of managing the Basin's water, are both technical and legal. Technically, we have limited quantification of the amount of water in the basin, limited information describing the interaction of groundwater and surface water and limited data quantifying groundwater recharge. Two separate legal cases occurring in the last two years, one based in the basin and one from outside, have served to further complicate the issue of water supply in a growing region.

### *Trout Unlimited v. DNRC, and HB 831*

One of the cases that put the issue of future water rights procurement front and center was *Trout Unlimited v. DNRC (2006)*. The *Trout Unlimited* case started when applications for groundwater permits were filed in the area of the Smith River (north-central Montana), which is in the Upper Missouri River Basin. However, the Upper Missouri River Basin was closed in 1993, and MCA 85-2-343 defined "ground water" to mean "water that is beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water and that is not immediately or directly connected to surface water."

The state legislature did not define the meaning of "immediately or directly connected to surface water," which caused Trout Unlimited, irrigators, and outfitters to file a lawsuit against

the DNRC, claiming in part that the DNRC's application process was improper and the definition of "immediate or direct" connection was too narrow. An agreement was settled between the two parties on how to determine if a groundwater application could be accepted, which required that a DNRC hydrologist determine if an applicant had submitted sufficient data to determine if the cone of depression would intercept surface water. However, the definition of "immediate or direct" connection issue went unresolved.

After the *Trout Unlimited v. DNRC* case concluded, Montana House Bill 831 was passed in response to the decision. This bill removed the "process" in "process or grant" language in the basin closure statutes, and removed the definition of "ground water" in the statutes, therefore resolving the issue of "immediately or directly connected." The bill also made a "hydrogeologic assessment" for all groundwater permit applications in closed basins a requirement. The purpose of the hydrogeologic assessment is to determine whether there will be "net depletion" to surface water sources." If the assessment predicts there will be a net depletion, the applicant must analyze whether the depletion will cause an "adverse affect" on a prior appropriator. According to HB 831, an adverse affect is a determination based, among other things, on the amount, location, and duration of the amount of net depletion. The applicant has the burden to prove a lack of an adverse affect to senior water appropriators. Finally, the bill removed closed basin exceptions for "municipal use" and "municipal water supply" and replaced with an exception for "municipalities."

Dr. Nicklin said the intent of HB 831 was to address the *Trout Unlimited v. DNRC* decision by the Montana State Supreme Court, protect prior appropriators, and to provide methods to allow new groundwater appropriations by offsetting adverse effects via mitigation and/or aquifer recharge.

The bill requires applicants to define a potentially affected area, which is defined in HB 831 as "the area or estimated area of groundwater that will be affected by a proposed project." Net depletions on surface water must be quantified, and the applicants must determine if adverse impacts may arise from the net depletions. If adverse impacts are found, the applicants must come up with a way to offset them, such as mitigation or recharge. One of the major findings of Nicklin is that meeting the requirements of HB 831 can be extremely difficult in the case of fluvial river reaches characterized by significant channel complexity, strong surface-groundwater interactions, and highly developed irrigation works (i.e., ditch networks). *This is recognized by developers, who often opt instead to drill exempt wells for each of the lots in new subdivisions not served by municipal water systems. Even in basins that are not closed, the costs and complexity and uncertainty involved in meeting permit application requirements for new groundwater appropriations often prompt developers to use the exempt well mechanism instead.*

### Thompson Falls Co-generation Decision

Another important constraint on water availability in the basin was revealed when the Thompson River Lumber Company (TRL) filed an application for a water use permit where it wanted to appropriate 250 gpm and up to 400 acft of water per year from the Clark Fork River by pump (this lower portion of the basin is not closed to new appropriations of surface water). The company wanted to use the water for power generation. However, there were objections

to this application. A contested case hearing under the Montana Administrative Procedures Act was held to determine if TRL proved all of the criteria deemed necessary by the DNRC. Avista Corporation was the only objector present at the hearing. The application was denied for failure to prove legal availability and lack of an adverse affect to a senior appropriator. The implication of this case is that the lower Clark Fork River is *de facto* closed to new appropriations of surface water.

## **Potential Solutions**

### **Controlling Growth**

#### Planning and Zoning

Another significant problem in the basin is the high amount of low-density growth. Dick King of the Missoula Area Economic Development Corporation questioned if this is sustainable, and suggested that large developments, such as the Bitterroot Resort might be better for the environment in the long run, as there would be higher-density development and also would have sewers and water systems, which would use water more efficiently than individual wells and septic systems.

Some suggestions brought to the conference focused on the ability of land use laws to deal with the water supply issue. Land use law can be divided into three aspects: planning, zoning, and subdivision. Planning in land use law refers to laws regarding planning boards and for growth policies. These laws can be found in Title 76, Chapter 1, Montana Code Annotated. First to be examined was the topic of zoning. Zoning allows for the designation of certain uses of the land in prescribed areas, and for intensities of use (i.e., density of development). It can, therefore, be an effective tool in controlling the pace of, and places in which, development occurs in a given county.

There are three types of zoning that can be employed in Montana. The first type is Part 1, or voluntary, petitioned county zoning. Procedures vary from county to county, but basically freeholders (landowners) in an area decide they want to be zoned. They designate the boundaries of the area of the zoning district and make suggestions for the content of zoning regulations. Signatures must be collected from at least 60% of the freeholders in the district, then the petition can be taken to the Clerk and Recorder. The Clerk or Recorder must determine how many freeholders are in the district and how many have petitioned to create the zoning district. They then certify the signatures and the percentage to the County Commissioners. If the petition contains 60% of the freeholders or more, the Board of County Commissioners hold a properly noticed hearing and determine whether the requisite number of freeholders have signed the petition and create the district, as long as the Commissioners are able to find that the district will be in the public interest or convenience.

Part 2 zoning, or county zoning, is the second type of zoning. County zoning has been allowed by law since 1963, but very few counties zone. There is a prediction that this kind of zoning will become more common, as more interests will want to zone and regulate land use. A growth policy must be adopted before a county may enact county zoning. Temporary zoning is allowed in the law for emergencies.

Municipal zoning has been authorized by law for municipalities in Montana since 1929. Like county zoning, a growth policy must be adopted before a municipality may zone, and temporary zoning is allowed as an urgency measure. There is zoning enabling legislation which allows not only the provision of water but also the protection of water through the “provision of sewage treatment.”

What is notable about the use of zoning (either Part 1 or 2) in unincorporated areas of Montana counties is that it has not been much employed. This owes primarily to the fact that Part 1 and Part 2 zoning are easily stymied if freeholders (i.e., landowners) representing at least 50% of the titled property ownership in the district protest the establishment of a zoning district within 30 days of its creation, the Board of County Commissioners may not create the district. In some cases, just one or more freeholders have the power to block zoning. In other cases the mere perception of a threat of protest and the expense of much time and effort for no cause will deter local officials from using zoning to control development.

### Senate Bill 201

SB 201 was adopted by the 60<sup>th</sup> Montana Legislature in 2007. There are three main things that SB 201 did. The first is that the bill created a voluntary city-county planning process designed to help local governments prepare for the impacts of growth and install the infrastructure necessary to service growth efficiently. The bill does this by creating a detailed planning and zoning process that includes: projecting future growth inside and adjacent to cities and towns, drawing a land use map that shows where future growth will be guided and at what densities, identifying existing infrastructure and services, planning for the future infrastructure and services need to service future growth efficiently, identifying adverse impacts of future growth, and descriptions of zoning and subdivision regulations. The bill also created a streamlined subdivision review process for those jurisdictions who undertake SB 201 planning and zoning. If a county/city chooses to follow the new and more detailed planning process under Sect. 76-1-601, and the county/city chooses to go through the public process to adopt zoning in accordance with the plan that avoids, significantly reduces, or mitigates adverse impacts identified in the planning process, then subdivisions in accordance with that zoning get a streamlined review. Lastly, the bill created a funding mechanism for SB 201 compliant jurisdictions. In short, the bill's goal was to make it easier for growth to be contained in cities and towns.

### Subdivision Review for Water Supply and Waste Water

The Montana Department of Environmental Quality has responsibility, along with local planning and health departments, of reviewing applications for major subdivisions (i.e., 6 or more newly created lots). Three elements are reviewed: water supply, wastewater, and stormwater. The DEQ relies on a number of technical manuals, procedures, and standards to do this. While the department can ensure that minimum standards for water quality (i.e., safe drinking water), water supply, and on-site septic/wastewater treatment will be met with whatever technologies and systems the developers propose, it cannot specify that community water systems or wastewater treatment systems be used.

It emerged in the conference, though, that local governments may have more power than they seem to be aware of. Michael Kakuk, Esq., said that local governments can't require permitting of individual wells producing less than 35 gpm because that falls under the DNRC's jurisdiction. However, it is his legal opinion that the local government has the power to require not having such wells in subdivisions, and can instead require community water systems. Kakuk went on to say that he thinks increased local regulation is not only inevitable, it's also a good idea. He thinks that Part 1 zoning should be banned, and regulations should be adopted through Part 2 zoning. Kakuk thinks the problems will go away if we get good planning and zoning, and until we get good planning and zoning, none of these problems will go away.

## **Bolstering Water Supply**

### Hungry Horse Water

Many in the conference mentioned a possibility of using water behind Hungry Horse Dam as a solution to increased growth in the Clark Fork Basin. Other solutions mentioned were aquifer storage and recovery, controlling growth, and conservation.

Hungry Horse Dam is on the South Fork of the Flathead River. The Hungry Horse Reservoir created by the dam stores spring snowmelt runoff and is at its maximum level during July. According to Brian Marotz of the Department of Fish, Wildlife and Parks, Hungry Horse affects four states, at least two federal agencies, 19 tribes, and every one of those parties wants some of the water from the reservoir. It is also one of the most important places in the world for two types of fish: the bull trout and the Westslope cutthroat trout.

The stored-up water is drawn down around 20 feet in August to enhance river flows for the downstream migration of juvenile salmon (in the mainstem Columbia River). In the fall and winter months, the reservoir is used to generate hydroelectricity. In order to use the water from Hungry Horse Dam for other purposes, it would have to be shown that none of the above uses would be harmed from a lack of water.

Also, there is a fair amount of water that enters the Hungry Horse Reservoir that belongs to the Confederated Salish and Kootenai Tribes (a compact between the tribes and the State of Montana is currently being negotiated). However when it comes to the Hungry Horse issue, the Tribe is willing to step back from asserting its full spectrum of rights and negotiate as long as improvements in the system are dedicated to bringing in-stream flows up to where they ought to be. This could help with getting more water into the Clark Fork basin, but this could take a long time. An example given was the settlement of the least complicated water compact in Montana with the Rocky Boys Tribe. There were six non-Indian claims on the reservation and it took six years to settle.

The Clark Fork River Basin Task Force's 2004 Watershed Management Plan recommended that the DNRC explore options for contracting for water from the Hungry Horse Reservoir to meet increasing demand for water in western Montana. That plan was largely adopted as a section in the Montana State Water Plan for 2005. The plan was also supported by the Montana State Legislature, as the 2005 Legislature's House Joint Resolution No. 3 urged the



DNRC to “enter negotiations with the Bureau of Reclamation (BOR) to determine the availability and cost of water stored behind Hungry Horse Dam” and to report on “the results of these negotiations.” In 2006, the DNRC entered discussions with the BOR and submitted its report in December 2006.

In contracting with the BOR, the contracted water would likely be used to offset impacts of new municipal and industrial uses throughout the basin to senior downstream water rights. The process of contracting would include several technical, negotiation, and approval steps, as well as complying with NEPA, the Fish and Wildlife Coordination Act, the National Historic Preservation Act, and the Endangered Species Act.

### Aquifer Storage and Recovery

Another possible solution to solve water shortage problems is aquifer storage/recovery. There's a difference between aquifer storage & recovery (ASR) and aquifer storage (AS). Formal ASR involves using a single well designed for both injecting and recovering water. It is more common with confined aquifers. In general, ASR is used to reach two objectives: to harvest excess water for later use, and to minimize the cost and impact of surface storage. Secondary objectives of ASR might be the control of subsidence and prevention of salt/brackish water intrusion.

Spreading grounds, impoundments and recharge basins are commonly used to inject water into the aquifer with AS. Single purpose injection wells are used, and it is more commonly used with unconfined aquifers. This water is then recovered elsewhere in the aquifer using conventional wells and mitigation to protect wetlands and restore surface water flow.

The practice of ASR has been around for 25 years, while AS has been practiced for almost 80 years. Spreading basins are most common for aquifer storage. The EPA took 50 sites where ASR and AS occur (20 fresh and 30 brackish water). They found that well clogging due to sediment, precipitation, and organic fouling was common. Consequently, many ASR/AS projects had to be redeveloped. Also, the recovered water was found to contain various metals and radionuclides. Because of these problems, both ASR and AS are controversial.

In terms of impacts on the public water supply, regulatory controls on ASR, such as the permitting process, mostly eliminated the practice of injecting water of impaired quality. Injection can cause changes to mineral solubility and minerals can enter the water. Water quantity impacts are highly dependent on the situation of the AS/ASR.

### Mixed Methods

Mike McLane of the Department of Fish, Wildlife and Parks (DFWP) had eight suggestions to help with the water problem: water conservation, increased administration, using existing storage, an active water leasing program, substituting water supply plans, changing policy, groundwater recharge, and water banking. With increased administration, McLane suggested that water commissioners could be set up either basin-wide or for sub-basins. They would sort through issues such as who has the right to use water and for how much and long.

## **Break-out Group Discussions**

Towards the end of the conference, those in attendance broke into small groups to discuss ways to improve local, state, and tribal water supply and growth planning. Afterwards, they reconvened and shared their results. Many of the groups mentioned that they were in favor of educating local governments on the issue and ceding water rights planning issues to the control of local governments. Conservation was also mentioned as a solution. There was also discussion about streamlining the water right approval process in order to lessen the number of 35 gpm exempt wells and to encourage new subdivisions to use community water and sewer systems.

A couple of discussion groups voiced concerns about pharmaceuticals in the water supply and what effect that would have on human health and the environment. Smart growth was also touted. Many groups were also in favor of a statewide hydrogeological study to determine where the water is and how much water the state has to use.

## **Conclusion**

There was a large amount of information presented in the conference on the issue of water supply and growth in the basin. Water is an increasingly essential and scarce resource, and it's important to be educated on the full scope of water issues in the Clark Fork River basin. The basin is, in fact, a microcosm of the western United States, and certainly the problems developing here are emerging in other Montana river basins as well. The good news is that people are talking about possible ways to alleviate the possibility of water shortages in the future. As the basin experiences population growth in the coming years, there will be an increased demand on water. It is important for the basin to be prepared for possible changes to the water supply in the future, including demand, quality, and availability. We do have a number of tools and policies that can aid in meeting the challenges of the future. These include land use planning and zoning, water conservation, Hungry Horse water, and others, but in an important way the onus is on local governments to implement many of these.

## **MARCH 10 PRESENTATION SUMMARIES**

### **Holly Franz: Water Law Primer**

The first presentation was given by Holly Franz, Esq. Franz practices law at Franz & Driscoll, a law firm based in Helena. She is a member of the Clark Fork River Basin Task Force (hereafter referred to as the Clark Fork Task Force). Her presentation focused on giving a basic understanding of water laws governing the Clark Fork River basin.

A basic issue that was first addressed was water right ownership. A water right is a “usufructory right”, meaning that the holder of the right does not own the water itself (as all water in Montana is owned by the state subject to appropriation for beneficial use), but has established a right use the water for a beneficial use. Water rights are a real property interest and generally run with the land to which they are attached (i.e., appurtenance), but can also be sold independently of land. The right of ownership is also constitutionally protected - all water rights that were established before July 1, 1973 cannot be changed without due process of law.

Water rights in Montana can be succinctly summarized with two phrases: “First in time is first in right,” and “Use it or lose it.” The former phrase means that water users with an earlier priority date (i.e., senior water users) are entitled to divert their full water right before a junior water user with a later priority date diverts any water. In shortages, there is no divvying up of the existing water; the senior water user is entitled to the full amount the right allows. Any water unused by the senior water user is available to the next most senior junior for use, and so on. There is no preference for the purpose of water use.

The latter phrase of “Use it or lose it” can be enforced as follows: if a water right is abandoned, meaning if a user has not used water for ten or more years when available, the inaction raises a rebuttable presumption of abandonment. This doesn't apply to federal and tribal reserved rights.

Another important law is the Water Use Act. Prior to July 1, 1973, water rights were acquired by use, the filing of notices of appropriation, or a decree by the district court. These rights are subject to adjudication by the Water Court. Also, there was no pre-approval needed for changes in the use of the right. After the Act was enacted, new water rights required a permit from Montana's Department of Natural Resources and Conservation (DNRC). Changes in water use require authorization from the DNRC. Exceptions to getting a permit through the DNRC includes groundwater extractions less than 35 gallons per minute (gpm) and up to 10 acre feet per year (acft/yr), or a stock pond less than 30 acft/yr on a non-perennial source serving 40 acres or more.

To file a permit, water must be physically available at the point of diversion. Water also needs to be legally available during the period of appropriation and have no adverse affect on senior water rights. There must be an adequate means of diversion, construction and operation, and the water must provide a beneficial use. Permit applications cannot be filed in closed basins (such as the Upper Clark Fork River and Bitterroot River basins). It's important to note that approximately half of the Clark Fork River basin is closed to new surface water diversions.

Groundwater permits in closed basins are only allowed if impacts to surface water are mitigated.

In order to change a water right, the DNRC requires that there is no adverse affect to other water rights, both senior and junior. Similar to the permit process, there must be an adequate means of diversion, construction and operation, and the water must provide a beneficial use. The change also needs to show no increase in consumptive use.

### **Marc Spratt: Basin Water Supply Facts**

Marc M. Spratt is a senior hydrologist and a principal owner of RLK Hydro. He is based in Kalispell. Spratt is also a member of the Clark Fork Task Force. His presentation focused on the water balance of the basin.

Spratt began with a brief explanation of hydrogeologic terms. An unconfined aquifer system is in sands and gravels, and in theory, open to the atmosphere. They are the most susceptible to contamination and are the places where water is easiest to reach, as they're generally shallow. Confined systems have a layer of material (usually clay or silty clay) overlying them, and water migrates through the soils to feed these in a recharge zone. The water in confined systems can be under pressure because of upslope recharge. Occasionally confined systems will have holes in them, and are called leaky confined systems. The holes become springs.

In geologic terms, the composition of a basin varies among its valleys. Generally, the valleys have layered fills in them. Consequentially, groundwater flows in a laminar fashion. In general, the water is older as one goes deeper, and the concentration of dissolved solids and radioactivity increases with depth.

The Upper Flathead basin is responsible for around 48% of the total outflow for the Clark Fork River. Next is the Lower Clark Fork basin, with 13%. The Bitterroot basin contributes 12%, followed by the Upper Clark Fork and Blackfoot at 8% each, Flathead Lake at 7%, and the Lower Flathead at 4%.

The Bitterroot basin is a long, linear valley filled with sandy gravels and silts above the bedrock. The valley is irrigated, and leakage from irrigation canals is a major source of recharge. In the Bitterroot drainage basin, average annual precipitation ranges from 14 to 80 inches, largely based on elevation. The total annual precipitation is 2,970,028 acft, and the total annual runoff is 2,047,071 acft. Approximately 600,000 acft/yr goes into groundwater as recharge.

For the Blackfoot basin, average annual precipitation ranges from 12 to 85 inches at a given point. The total annual average precipitation is 2,327,399 acft, and the total annual runoff is 1,295,112 acft. Approximately 465,480 acft/yr goes into groundwater as recharge. The geology of the Blackfoot basin consists of sands, gravels, and silt in the valley, and bedrock on the mountain slopes.

The Flathead basin has average annual precipitation ranging from 12-120 inches. The total annual average precipitation is 9,344,820 acft, and the total annual runoff is around 7,000,000 acft. The annual recharge is 1,800,000 acft. There are also a number of fault systems that are becoming more important in relation to groundwater.

In the Lower Clark Fork, there are fairly narrow valleys filled with alluvium. Total precipitation is 4,633,912 acft/yr. Precipitation ranges from 12-120 in/yr at a given point. The average annual recharge is 926,782 acft, and the runoff is 3,644,323 acft.

The Upper Clark Fork basin has average annual precipitation ranging from 10-80 in/yr. The total annual average precipitation is 3,217,917 acft, and the total annual runoff is 1,168,721 acft. Approximately 644,000 acft of water enters the ground for groundwater recharge.

There is a slight upward trend in the basin discharge except for the drought years. During the drought years, there is a clear downward trend in the basin discharge.

Basin Name	Precipitation ranges (in/yr)	Total annual precipitation (acft/yr)	Total annual runoff (acft/yr)	Total annual recharge (acft/yr)
Bitterroot	14-80	2,970,028	2,047,071	600,000
Blackfoot	12-85	2,327,399	1,295,112	465,480
Flathead	12-120	9,344,820	7,000,000	1,868,964
L. Clark Fork	12-120	4,633,912	3,644,323	926,782
U. Clark Fork	10-80	3,217,917	1,168,721	644,000
Total		22,495,076	15,155,227	4,505,226

## Anne Yates: Recent Legal Rulings

Anne Yates is the Deputy Legal Counsel for Water for the DNRC. Her presentation focused on three legal rulings: *Trout Unlimited v. DNRC (2006)*, Montana House Bill 831, and the Thompson River Cogeneration issue. These rulings have a great amount of importance for those wanting to protect or garner new water rights in the state of Montana.

The *Trout Unlimited* case started when applications for groundwater permits were filed in the area of the Smith River (north-central Montana), which is in the Upper Missouri River Basin. However, the Upper Missouri River Basin was closed in 1993, and MCA 85-2-343 defined “ground water” to mean “water that is beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water and that is not immediately or directly connected to surface water.”

The state legislature did not define the meaning of “immediately or directly connected to surface water”, which caused Trout Unlimited, irrigators, and outfitters to file a lawsuit against

the DNRC, claiming in part that the DNRC's application process was improper and the definition of "immediate or direct" connection was too narrow. An agreement was settled between the two parties on how to determine if a groundwater application could be accepted, which required that a DNRC hydrologist to determine if an applicant had submitted sufficient data to determine if the cone of depression would intercept surface water. However, the definition of "immediate or direct" connection issue went unresolved.

Trout Unlimited then brought the issue to the District Court. The court held that Trout Unlimited failed to exhaust its administrative remedies before bringing an action in the District Court. The District Court went on to state that the definitions and methods involved in processing water use applications lie within the DNRC's discretion.

This was then brought to the Montana Supreme Court. The Supreme Court determined that the DNRC's interpretation of "immediately or directly connected" failed to account for impacts to surface flow caused by the pre-stream capture of tributary groundwater.

The results of *Trout Unlimited v. DNRC* were the virtual *de facto* closures of the Upper Missouri, Teton, and Jefferson/Madison River basins to new groundwater permits under the exception. The applicant for a water permit had to provide information that proved that the groundwater they sought to use did not at any time capture pre-stream tributary groundwater. Because of this, 28 applications were affected, and of those, 21 were terminated. This case did not apply to the Bitterroot and Upper Clark Fork basins because of different wording in the closures of those basins.

After the *Trout Unlimited v. DNRC* case concluded, Montana House Bill 831 was passed in response to the decision. This bill removed the "process" in "process or grant" language in the basin closure statutes, and removed the definition of "ground water" in the statutes, therefore resolving the issue of "immediately or directly connected." The bill also made a "hydrogeologic assessment" for all groundwater permit applications in closed basins a requirement. The purpose of the hydrogeologic assessment is to determine whether there will be "net depletion" to surface water sources. If the assessment predicts there will be a net depletion, the applicant must analyze whether the depletion will "adversely affect" a prior appropriator. According to HB 831, an adverse affect is a determination based, among other things, on the amount, location, and duration of the amount of net depletion. The applicant has the burden to prove a lack of an adverse affect to senior water appropriators. Finally, the bill removed closed basin exceptions for "municipal use" and "municipal water supply" and replaced with an exception for "municipalities."

Another important constraint on water availability in the basin was revealed when the Thompson River Lumber Company (TRL) filed an application for a water use permit where it wanted to appropriate 250 gpm and up to 400 acft of water per year from the Clark Fork River by pump (this lower portion of the basin is not closed to new appropriations of surface water). The company wanted to use the water for power generation. However, there were objections to this application. A contested case hearing under the Montana Administrative Procedures Act was held to determine if TRL proved all of the criteria deemed necessary by the DNRC. Avista Corporation was the only objector present at the hearing. The application was denied for failure to prove legal availability and lack of an adverse affect to a senior appropriator.

In order to support its application, TRL compared flow data to the DNRC water right records for the Clark Fork River for a distance of five miles downstream of the proposed point of diversion. The Hearing Examiner found that the largest water right in the five-mile stretch is Pacific Power and Light's 23,420 cubic feet per second (cfs) right for power generation at its facility located at Thompson Falls. Avista (the objector) has water rights for 50,000 cfs for Noxon Rapids Dam, which is approximately 40 miles downstream of TRL's proposed project.

The arguments between TRL and Avista were as follows: TRL argued that water is available for appropriation at any time the flow in the Clark Fork River is more than 50,000 cfs or at any time Avista's needs are less than 50,000 cfs. Avista has maintained records of flow through its turbine generators on a daily basis, and there was no month during which flows, on average, exceeded 50,000 cfs. Also, flows at the dam exceeded 50,000 cfs only 16.1 to 23.7 days a year between April and July. TRL maintained that 250 gpm is not measurable at downstream diversions when compared to the total flow in the Clark Fork River and that it is futile to measure 250 gpm. They were also willing to decrease diversions if a legitimate call on the source was made by a downstream senior appropriator.

The Hearing Examiner found that TRL didn't prove that water was legally available because an applicant must prove that at least in some years, sufficient unreserved water will be physically available at the point of diversion to supply the amount requested throughout the period of appropriation, and that at least in some years, no legitimate calls for water will be made on him by a senior appropriator. TRL did also not prove that no legitimate calls for water will be made on it by a senior appropriator in at least some years.

### **Susan Ockert: Demographics of the Clark Fork River Basin**

Susan Ockert works for the Montana Department of Commerce's Census and Economic Information Center. Her presentation focused on the demographics of the Clark Fork River basin.

To determine the demographics of the Clark Fork River basin, county boundaries were overlaid the geographical boundary of the basin. All census blocks not within the basin were removed from the counties' census records. Over 99% of the populations of each of the ten counties are located entirely within the Clark Fork River basin, including Deer Lodge, Flathead, Granite, Lake, Mineral, Missoula, Powell, Ravalli, Sanders and Silver Bow counties, and all of the Flathead Reservation. The population of the basin was 301,888 at the 2000 census, and was estimated to be 322,709 in 2006, a 6.9% increase. Flathead County was the fastest-growing county during this period, at a rate of 14.1%. This is significant, as Flathead County has the second-largest county population in the Clark Fork River basin. Three counties had declining population rates (Silver Bow, Deer Lodge, and Powell).

In terms of the percent change of total population by age group from 2000-2006, there was a decrease in population in the 0-19 age group, but an overall increase in the 20-64 and 65+ age groups. Between 2005-2006, there was a significant number of people migrating to the Clark Fork River basin. While there was plenty of in-state migration, the majority of the migration was from out-of-state. The out-of-state migration was more pronounced in

Flathead, Missoula and Ravalli counties, which happen to be the three largest counties in the basin in terms of population.

When income is taken into consideration in comparing migrants coming from inside and outside the state for 2005-2006, the out-of-state migrants tend to have a higher average aggregate income than in-state migrants. Only Granite County significantly bucks this trend, with the average income of in-state migrants being higher.

Projections were completed to determine what kind of population change the basin could expect from 2010 to 2030. It's predicted that the Clark Fork River Basin will reach 342,780 in 2010 and 454,820 in 2030, which would be a 33% increase. Ravalli County is predicted to be the fastest-growing county with a 61% increase in population, followed by Flathead (40%), Lake (36%), Missoula (31%), Sanders (27%), Mineral (20%), Granite (19%), Powell (16%), Silver Bow (6%) and Deer Lodge counties (-6%). Both Silver Bow and Deer Lodge counties have negative population trends in the beginning of the prediction, but which will gradually trend positively toward 2030. It should also be noted that the three most populated counties (Ravalli, Flathead and Missoula) are in the top four of growth rates.

When the percent change in population for 2010-2030 is broken down by age groups, both the 0-19 and 20-64 age groups are expected to increase in overall numbers, but the 65+ population will grow at a significantly higher rate. In Flathead County alone, the 65+ population is forecasted to increase by around 135%.

While there is a predicted increase in total population, population growth rates are projected to slow between 2010-2030. The Clark Fork River basin population will age in a similar fashion to the rest of Montana and the nation. It appears that the basin will experience an influx of retirees, and solutions will have to be created and implemented to deal with this change in demographics.

### **Dick King: The Clark Fork River Basin's Economic Profile**

Dick King is employed with the Missoula Area Economic Development Corporation. His presentation focused on the economy of the Clark Fork River basin.

In the year 2000, the Clark Fork River basin made up 34.4% of Montana's total population. Of that, 68% of the basin's population resides in Flathead, Missoula and Ravalli counties, and those three counties have accounted for 92% of the population growth in the Basin since 2000. Population projections have predicted consistent growth to 2020. Most of the growth will occur in Flathead, Missoula and Ravalli counties, and growth in counties such as Silver Bow, Lake and Sanders is likely.

When discussing labor force trends, the average annual labor force in the basin increased 6.6% between 2000 and 2006, reaching 166,194, while employment in the basin grew 8.4% annually during the same period, reaching 160,420. This rate outpaced the growth rate of employment of Montana between 2000 and 2006, which was 6.6%.



Government, real estate, and retail activity make up the largest percentages of the region's GDP. The largest employers are government, retail and health care. The industries with the highest wages are federal civilian, utilities, and mining. When considering total receipts, agriculture, oil and gas, and tourism are the largest contributors. Manufacturing, agriculture, and mining make up the industries that export the most in the Clark Fork River basin. Information Technology and construction are the fastest growing industries.

Residential development has been occurring with low densities (i.e., one home per two acres). King questioned if that was sustainable, and suggested that large developments, such as the Bitterroot Resort, might be better for the environment in the long run as there would be higher-density development and these would have sewers and water systems, which would use water more efficiently than individual wells and septic systems.

A lot of the growth occurring in the basin has been second-home growth, where people live in other houses for the majority of the year and aren't permanent residents. These people are not counted in censuses.

### **Tim Bryggman: Future Water Demand in the Clark Fork Basin**

Tim Bryggman is an economist with the Montana Department of Natural Resources and Conservation (DNRC). He presented the DNRC's projection of future water use in the basin.

The DNRC has estimated future water demand for the Clark Fork River basin as a part of the effort to obtain water service contracts from the U.S. Bureau of Reclamation's (BOR) Hungry Horse Reservoir.

The Clark Fork Task Force's 2004 Watershed Management Plan recommended that the DNRC explore options for contracting for water from the Hungry Horse Reservoir to meet increasing demand for water in western Montana. That plan was largely adopted as a section in the Montana State Water Plan for 2005. The plan was also supported by the Montana State Legislature whose 2005 House Joint Resolution No. 3 that urged the DNRC to "enter negotiations with [BOR] to determine the availability and cost of water stored behind Hungry Horse Dam" and to report on "the results of these negotiations." In 2006, the DNRC entered discussions with the BOR and submitted its report in December 2006.

In contracting with the BOR, the contracted water would likely be used to offset impacts of new municipal and industrial uses throughout the basin to senior downstream water rights. The process of contracting would include several technical, negotiation, and approval steps, as well as complying with NEPA, the Fish and Wildlife Coordination Act, the National Historic Preservation Act, and the Endangered Species Act. A Cost Reallocation Analysis would be required to allocate project costs to authorized, new purposes under the anticipated new operation criteria. The costs of that analysis would be paid by the State of Montana. In 2007, the State Legislature appropriated \$260,000 to the DNRC to pay for the BOR's cost reallocation analysis for the Hungry Horse Reservoir.

In considering the use of water of the Hungry Horse Reservoir, it should be noted that the Clark Fork Task Force's Watershed Management Plan included basin population estimates of 266,014 in 1990 and 316,188 for 2000, which would be an increase of 19% between those years. Bryggman extrapolated that rate for projections, and made estimates of the Clark Fork River basin populations at 375,829 for 2010 and 891,698 for 2060. This contradicts the projections of demographer Susan Ockert, who predicted that the rate of population increase would slow as time went on.

Based on the annual water consumption by Mountain Water Company residential customers of 0.24 acft per household, annual water consumption associated with the basin's 224,291 additional households in 2060 would be 54,264 acft. If one increases the consumption of residential customers to 0.29 acft per household, annual water consumption would be 62,071 acft. Including "unaccounted" water with all Mountain Water uses results in an annual water consumption per household of 0.67 acft, implying an additional annual water consumption in 2060 of 150,336 acft. The DNRC is hoping to request 50,000 to 100,000 acft/yr to satisfy the needs of growth. The analysis performed did not include irrigation and focused on household use only. In order for the allocation to happen, it must be approved by Congress.

## **MARCH 11 PANEL & PRESENTATION SUMMARIES**

### **Panel: Who Makes What Decision in Planning for Growth?**

#### **Myra Shults: Elements of Land Use Law**

Myra Shults, Esq., is an attorney for the Joint Powers Insurance Authority. She has been practicing law since 1996. She originally defended counties in subdivision and zoning cases, and has been a consultant since 2004. Her presentation focused on the elements of land use law.

Land use law can be divided into three aspects: planning, zoning and subdivision. Planning in land use law refers to laws regarding planning boards and for growth policies. These laws can be found in Title 76, Chapter 1, Montana Code Annotated (MCA).

When it comes to growth policies, the first step is the Planning Board develops one at the request of county commissioners, either on its own or with the help of a consultant. After the Planning Board makes its recommendations to the governing body by resolution, the governing body then adopts a resolution of intent to adopt, adopts with revisions, or rejects the growth policy.

There are three types of zoning for land use law. The first type is Part 1 (from Part 1 of MCA Title 76, Chapter 2, or 76-2-101), or voluntary petitioned, zoning. Procedures vary from county to county, but basically freeholders (landowners) in an area decide they want to be zoned. They designate the boundaries of the area of the zoning district and make suggestions for the content of zoning regulations. Signatures must be collected from at least 60% of the freeholders in the district, for then the petition can be taken to the Clerk and Recorder. The Clerk or Recorder must determine how many freeholders are in the district

and how many have petitioned to create the zoning district. They then certify the signatures and the percentage to the County Commissioners. If the petition contains 60% of the freeholders or more, the Board of County Commissioners must hold a properly noticed hearing and determine whether the requisite number of freeholders have signed the petition and create the district, as long as the Commissioners are able to find that the district will be in the public interest or convenience. [It is important to note that if freeholders (i.e., landowners) representing at least 50% of the titled property ownership in the district protest the establishment of the district within 30 days of its creation, the Board of County Commissioners may not create the district.]

Part 2 (from Part 2 of MCA Title 76, Chapter 2, or MCA 76-2-201), or county zoning, is the second type of zoning. County zoning, for all or any part of a county, has been allowed by law since 1963, but very few counties zone. She did predict that this kind of zoning will become more common, as more interests will want to zone and regulate the use of land. A growth policy must be adopted before a county may enact county zoning. Temporary zoning is allowed in the law for emergencies. [As is the case for Part 1 zoning, the establishment of any size zoning district may be stymied by formal protest of 50% of the titled property ownership in the area of concern.]

Municipal zoning has been authorized by law for municipalities in Montana since 1929. Like county zoning, a growth policy must be adopted before a municipality may zone, and temporary zoning is allowed as an urgency measure. There is zoning enabling legislation which allows not only the provision of water but also the protection of water through the “provision of sewage.”

The Montana Subdivision and Platting Act (MSPA) is the land use law that is most widely known. Enacted in 1973, the law requires all counties to have subdivision regulations which should be updated after each legislative session. The Act contains six parts. Part 1 of MSPA contains general provisions: the purpose of the Act, definitions, and remedies for violations. Part 2 contains exemptions. Part 3 is entitled “Land Transfers” and is made up of provisions. Part 4 contains provisions for surveying. Part 5 contains provisions relating to local subdivision regulations. Part 6 contains information on the local review procedure and also contains the provision enacted in 1995 that allows suits and appeals of subdivision decisions. When it comes to water, a county does not have the power to deny a subdivision if it didn't have adequate water, as the Department of Environmental Quality (DEQ) allows cisterns for individual lots and water hauling. A county could require community water and septic systems if it complied with the procedure in Sect. 76-3-511, MCA. This code section allows a governing body to adopt a regulation more stringent than comparable state regulations or guidelines that address the same circumstances. A public hearing would take place and evidence needs to be provided that the proposed standard or requirement protects the public health or the environment. Also, it needs to be shown that the standard or requirement can mitigate the public health or the environment, and is achievable under current technology.

Shults had the opinion that the existing laws make it more difficult, if not impossible for counties to require community water and septic systems. She went on to say that without a statewide hydrological study, the science does not exist to justify requiring these systems.

### **Michael Kakuk: Local Regulation of Land Use**

Michael Kakuk, Esq., is an attorney who works primarily with the development community. He has been a lobbyist for the Montana Association of Realtors, the Montana Building Industries Association, Western Environmental Trade, and the Montana Contractors Association. His presentation focused on local regulation.

It is Kakuk's opinion that the reason subdivision regulation exists is because local governments were afraid to plan and zone. He believes that's where our problems started with subdivisions. Local governments have authority in terms of zoning and subdivision, and Kakuk wants to see these sorts of decisions made at the local government level. He doesn't want to see the state government telling people what they can and cannot do with their private property.

Kakuk said that local governments can't require permitting of individual wells producing less than 35 gpm because that falls under the DNRC's jurisdiction. However, it is his legal opinion that the local government has the power to enforce not having such wells in subdivisions, and can instead require community water systems. Kakuk went on to say that he thinks increased local regulation is not only inevitable, it's also a good idea. He thinks that Part 1 zoning should be banned, and regulations should be adopted through Part 2 zoning.

Kakuk thinks the problems will go away if we get good planning and zoning, and until we get good planning and zoning, none of these problems will go away.

### **Eric Regensburger: Summary of DEQ Subdivision Review Process and Planning for Growth**

Eric Regensburger is employed by the Department of Environmental Quality (DEQ) where he works in the Subdivision Review Program. His presentation focused on rules for individual septic systems and wells, but also touched on what's required for approval of larger public systems.

When performing a subdivision review, three main components are looked at: water, wastewater, and storm water. For water, a plan and specification review is done, along with examining the quality, quantity, and dependability of the source. With wastewater, a plan and specification review is also done, and the proposed wastewater treatment system is examined to make sure water supplies aren't polluted downstream, or downgradient in the case of groundwater. This is known as a non-degradation review. Subdivision review is only performed for lots under 20 acres. If the lot is 20 acres, a county review is usually performed.

When performing a plan and specification review, the DEQ reviews the proposed subdivision for compliance with rules and technical circulars. Subdivision rules are checked, along with

DEQ-1 for community public systems or DEQ-3 for multi-user and small public systems. Larger public systems are reviewed by the public water supply section of DEQ.

When checking for water quality, the water cannot exceed human health standards for a number of pollutants (which are listed in DEQ-7). If human health standards are exceeded, water can be treated using point of use devices such as a reverse osmosis system. Typically, water is tested just for specific conductance, nitrate, and total coliform bacteria in existing water wells, unless there is an indication of other pollutants in the water. Arsenic is becoming a larger problem in water quality, and may be more regularly tested for in the future.

The second aspect examined is quantity, in terms of the water source's ability to meet peak demands. For a single family home, it is seen if the water source can provide 10 gpm for 1 hour, 6 gpm for 2 hours, or 4 gpm for 4 hours. If the source cannot meet that, cisterns can be used. Cisterns can also be used in conjunction with wells.

Dependability is the hardest issue to examine and prove. It's important to see if the water will be available in the long term. According to the Regensberger, dependability is the ability to use water in perpetuity from an aquifer without "mining" the aquifer and possibly destroying the aquifer.

When performing a plan and specification review for wastewater, it's important to review the plan for compliance with rules and technical circulars. Subdivision rules are looked at, along with DEQ-2 and DEQ-4. DEQ-2 is primarily for municipal and larger systems, while DEQ-4 focuses on smaller systems. Any system that has a design that's meant for over 5,000 gallons per day (gpd) is reviewed by the Discharge Permit Section of the DEQ office.

With wastewater, water quality is also reviewed for compliance with water quality standards. The Water Quality Act, DEQ-7, and non-degradation rules are checked. Some of the non-degradation rules include mixing zone rules, which address levels of nitrates, the travel time for phosphorus to surface water, and pathogens.

The last thing examined is storm water. Like wastewater and domestic water, the plan for management of storm water is reviewed for compliance with rules and technical circulars. DEQ-8 is the technical circular regarding storm water, and there are also some subdivision rules that need to be checked.

Basically, the DEQ reviews plans for compliance with minimum standards. If those standards are met, DEQ cannot require a different type of system than what is proposed. For example, if a person wants to install individual wells and the DEQ doesn't think it's a good idea, there is nothing it can do. The difficulty and the amount of time required with other regulatory processes often pushes development toward individual systems.

## **Bill Schultz: Decisions Regarding Water Rights**

Bill Schultz is a DNRC Water Resources Division Regional Manager at the Missoula Regional Office. This office serves Granite, Mineral, Missoula and Ravalli Counties. His presentation focused on who makes what decisions in terms of water rights.

In simple terms, development requires water. Water is owned by the state of Montana, but the right to use the water requires a water right, as stated before. The decision authority on who gets issued a water rights permit, and if a water right can be changed, belongs to the DNRC Water Resources Division.

Water rights decisions are either to grant, deny, or modify the permit or change application. When there are no objections to a permit or change application, or objections are satisfied, the decision is made by the Regional Manager of the DNRC Water Resources Division. If there are objections that lead to a hearing, the decision rests with the DNRC Hearings Examiner. If the decision is appealed, it is then brought to the District Court.

The Clark Fork basin has three different regional offices that have jurisdiction. The Helena Regional Office has jurisdiction over Deer Lodge, Lewis & Clark, Powell, and Silver Bow counties. The Missoula Regional Office has jurisdiction over Granite, Mineral, Missoula, and Ravalli counties. The Kalispell Regional Office has jurisdiction over Flathead, Lake, Lincoln, and Sanders counties.

The water right permit and change authorization issuance criteria have been established in two statutes: 85-2-311 MCA for permits, and 85-2-402 MCA for changes. Permit statute MCA 85-2-311 states that the applicant must prove the following criteria: that water is physically and legally available; the water rights of a prior appropriator will not be adversely affected; the proposed means of diversion, construction, and operation are adequate; the proposed use is a beneficial use of water; there is possessory interest in the place of use; and the water quality of a prior appropriator will not be affected. In MCA 85-2-402 for changes, the criteria are nearly identical to MCA 85-2-311, aside from proving that water is physically and legally available.

The applications are submitted, processed through a correct and complete review, and sent out for public notice. If there are no objections voiced after 30 days and the criteria for permit or change are met, then the application is documented in a Criteria Assessment. The Criteria Assessment is prepared to document information and evidence submitted by the applicant proving the criteria in 85-2-311 or 402 have been met. After that, a permit or change authorization is issued by the Regional Manager.

If there are no objections and the Regional Manager finds that not all of the criteria have been met, then a Statement of Opinion is prepared to document information and evidence submitted by the applicant on criteria that have been met and why. It will also outline why certain criteria have not been met. The Regional Manager proposes if the permit should be modified or denied. The applicant then can request a show-cause hearing within 30 days.

Groundwater developments with a maximum use of 35 gpm and up to 10 acft/yr are exempt

from the permit process. This includes wells, developed springs, and groundwater pits. The applicant has to file a Notice of Completion for groundwater development within 60 days after project completion and use of water. The criteria for issuance of groundwater certificates are proof of possessory interest in the place of use, and they have to show exclusive rights in the groundwater development works or written consent of the person with those rights can be obtained.

In order to prove the physical availability of surface water, the applicant must show substantial credible information showing water that's available at the requested flow rate, volume and period of use. Stream gage records and accepted estimation methods with validation measurements can be used. Otherwise, a collection of stream discharge data is required if gaging station data are not available. For proving the physical availability of groundwater, substantial credible information showing that water is available from the source aquifer in the amount requested must be presented. The applicant must perform an evaluation of the drawdown for the maximum pumping rate and volume. The drawdown must be projected compared to the height of the water column above the pump in the well. A 24 hour test must be done if there's less than 150 gpm and 50 acft/yr. If the applicant is planning on withdrawing more than that amount, a 72 hour test is required.

When analyzing the legal availability of surface water and groundwater, there are standards listed in the new appropriation rules in Sect. 36-12-1705 MCA. The physical water supply needs to be compared with the legal demands within the area of potential impact at the point of diversion.

Because of HB 831, a hydrogeologic assessment is required with groundwater applications in closed basins. The applicant must do an analysis and prediction of net depletion to surface water, and an analysis of the potential for the net depletion to cause an adverse effect. If the net depletion does result in an adverse effect, there must be a mitigation or aquifer recharge plan to offset the net depletion.

### **Dr. Michael Nicklin: Implications of HB 831**

Dr. Michael Nicklin owns and operates a consulting firm called Nicklin Earth & Water, which specializes in water resource-related issues. He works primarily in the area of groundwater and surface water hydraulics assessment and environmental assessment. His presentation focused on an overview of HB 831.

Dr. Nicklin said the intent of HB 831 was to address the *Trout Unlimited v. DNRC* decision by the Montana State Supreme Court, protect prior appropriators, and to provide methods to allow new groundwater appropriations by offsetting adverse effects via mitigation and/or aquifer recharge.

The bill requires applicants to define a potentially affected area, which is defined in HB 831 as "the area or estimated area of groundwater that will be affected by a proposed project." Net depletions on surface water must be quantified, and the applicants must determine if adverse effects may arise from the net depletions. If adverse effects are found, the applicants must come up with a way to offset them, such as mitigation or recharge.

When quantifying the impact of well pumping on all potentially affected surface waters, it may be technically feasible in some cases (such as when there are no streams or a single stream is involved), and infeasible in others (several surface water features like streams, ditches and springs). It may not be possible to determine net depletions in complex systems because of a general lack of historical data, general lack of knowledge when it comes to stream/groundwater interaction hydraulics, geologic complexity, and other reasons.

When recharge to offset adverse impacts is done, it requires a means of measurement and assurance that water is applied. The most logical way to recharge is with an infiltration gallery. In order for recharge to work, the geologic system properties must be favorable to allow sufficient infiltration to occur. Like recharge, mitigation requires a means of measurement and assurance that water will actually be used for mitigation purposes.

According to Dr. Nicklin, HB 831 is intended and projected to protect senior appropriators. It also forces development to occur where surface water irrigation has historically occurred, which will tend to focus development to the vicinity of streams or alluvial valleys where water is more likely to be plentiful for mitigation and/or recharge purposes. Because the process is complex and not failsafe, the Dr. Nicklin predicts that in closed basins developers will opt to use exempt wells rather than deal with the requirements of HB 831, as that is the simpler solution. He also predicts that HB 831 will create a water market economy which may price water out of the reach of most agricultural irrigators. This, in turn, could accelerate the transfer of surface water rights from agricultural irrigation to other forms of development.

Dr. Nicklin recommended that comprehensive watershed water budget evaluations should be conducted at a watershed or sub-watershed scale to determine what the significance of water use is. He also recommends simplifying the permit process, define a reasonable "potentially affected area," and to relax the 0.01 foot cone-of-depression criterium.

### **Tim Davis: SB 201 Opportunities and Facts**

Tim Davis is the Director of the Montana Smart Growth Coalition. He has been involved with growth issues for 15 years. He runs a statewide coalition of 40 groups that have come together to protect such things as Montana's water and quality of life. His presentation focused on explaining Senate Bill 201.

Davis argued that 35 gpm exempt wells and individual septic systems really create a disincentive for local governments to plan and get ahead of growth. It creates an incentive for growth to leap-frog to places where there is no planning and zoning done, even if nearby towns have created community water and septic systems.

There are three main things that SB 201 did. The first is that the bill created a voluntary city-county planning process designed to help local governments prepare for the impacts of growth and install the infrastructure necessary to service growth efficiently. The bill does this by creating a detailed planning and zoning process that includes: projecting future growth inside and adjacent to cities and towns, drawing a land use map that shows where future growth will be guided and at what densities, identifying existing infrastructure and services,



planning for the future infrastructure and services need to service future growth efficiently, identifying adverse impacts of future growth, and descriptions of zoning and subdivision regulations. The bill's goal was to make it easier for growth to be contained in cities and towns.

Second, SB 201 created a streamlined subdivision review process. If a county/city chooses to follow the new and more detailed planning process under Sect. 76-1-601, and the county/city chooses to go through the public process to adopt zoning in accordance with the plan that avoids, significantly reduces, or mitigates adverse impacts identified in the planning process, then subdivisions in accordance with that zoning get a streamlined review.

Finally, SB 201 created a funding source to help pay for planning. If a county/city commits in a resolution to undertake SB 201 planning, then they may collect the SB 201 per lot or unit planning fees authorized under Sect. 76-1-410.

Though SB 201 encourages planning, it does not make growth policies regulatory or required. The bill also does not create any new regulatory powers.

### **Keynote Address**

#### **Sen. Jim Elliot: Water Issues in Montana and the Water Policy Interim Committee**

Sen. Jim Elliot is a veteran and leader in the State Legislature. He started in the Montana House, served the maximum number of allowed terms in the Senate, and is now planning to run for a House seat again. He is the chairman of the Water Policy Interim Committee.

Elliot argued that the United States has a crisis government - the government waits to act until there's a crisis. When you legislate from a crisis situation, you overreact. If the Legislature can think ahead, it can stave off serious effects. The WPIC is attempting to do just this.

Rep. Cohenour is drafting a bill that proposes bucket-for-bucket replacement of water for new rights in closed basins. In a closed basin, water taken out has to be mitigated. A hydrogeological study is required, or all of the water taken out can instead be replaced. This would not preclude a hydrogeological study at a later point, but if such a study determined a lesser mitigation requirement such would be possible.

It takes a long time to get a water right. In an effort to speed that up, Elliot proposed that if a Notice of Intent to Drill were offered, people could object beforehand and the developer might know what to expect and they would of course have to object again if water is found. There is another draft bill that would give the DNRC a new enforcement division to enforce water rights. Another bill would give local governments the ability to require water and sewer systems in a development. Other draft bills include: one that deals with state water reservations, one that would deny plat approval without water rights being secured, one that would have the Chief Water Judge resolve issue remarks, and a groundwater investigation bill. Elliot noted that he had recently received a letter from the Montana Association of Realtors and the Montana Building Industry Association, and these organizations basically oppose any of these proposed policies. This reduces Elliot's hope that any of the proposed legislation will be enacted. Two other issues are lack of data and lack of adjudication.

Elliot observed that in order to pass effective legislation, all stakeholders must play a role in the development of such. It is important for all stakeholders to come to the table rather than working to thwart the efforts of others.

Elliot argues that the single most important thing about water is sustaining life, and solutions to the problems of water Montanans face must be created.

### **Panel: Water Management Issues**

#### **Jim Carlson: Public Water and Sewer Systems**

Jim Carlson is the Director of the Environmental Health Division for the Missoula City-County Health Department. He has dealt with issues such as air pollution control and water quality, and has been an Environmental Health Specialist since 1974. His presentation focused on public water and sewer systems.

Mr. Carlson said one of the primary public health infrastructure items that the Missoula City-County Health Department tries to attain is to provide public water supplies that are safe and regularly monitored. Public sewers with high levels of treatment protect aquifers (which are the sole sources of drinking water supply), reduce impacts on the river when the water re-enters, and reduce treatment needs for downstream water users.

The Missoula Valley is a structural valley. Glacial lake-bed sediments from Glacial Lake Missoula and alluvial sediments are on top of tertiary sediments that are around 3000 feet deep. The alluvial sediments are highly productive. The water underneath the tertiary sediments is very old, and cannot be used because there is radioactivity.

As the Clark Fork enters the Missoula Valley, it is around 40 feet higher than the Bitterroot River. It sits above the saturated zone in alluvial sediments and leaks out a fair amount of water. For most parts of the valley, nothing separates the drinking water supply from septic system effluent and other surface contamination. There have been problems with groundwater contamination, most notably from gasoline, PERC (perchloroethylene) and nitrates in wells, and concerns about pharmaceuticals and their metabolites.

Carlson argued that individual wells aren't the ideal water source, as they are often poorly placed, unmonitored, sometimes poorly constructed, and there's no alternative supply if the well becomes contaminated. He also said that allowing a water right for individual wells while requiring a purchased existing right for public wells further encourages development with individual wells, which results in less safe and more consumptive water use.

In order to correct these problems, Carlson suggested that wells with a 35 gpm use should only be allowed on existing parcels. He said that these wells dilute the value of existing water rights. He recommended that newly subdivided parcels obtain an existing water right when individual wells are used. He also recommended that public wells be allowed where consumptive use is minimal.

Excessive algae due to eutrophication is also a problem in the Clark Fork basin. The Clark Fork was listed as impaired under the Clean Water Act due to algae growth in 1988. Impacts of excessive algae include degradation of aquatic habitats, altering the invertebrate communities, and lowering fish populations. It also depletes dissolved oxygen supplies, modifies river flows, and increases sedimentation in algal beds.

The basin's Voluntary Nutrient Reduction Plan (VNRP) was signed In 1998, , giving 10 years to achieve reductions in nutrients. Signatories included DEQ, EPA, Butte/Silver Bow County, the City of Deer Lodge, the City of Missoula, Missoula County, Missoula Health Board and Smurfit-Stone. The VNRP offered incentives to connect to public sewers for existing facilities and new subdivisions. Two goals stated by the VNRP were to connect 50% of the existing septic systems in the Missoula urban area to sewers, and continuing to connect existing septic systems to sewers in the Missoula area at a rate equivalent to the number of new septic systems.

### **Rep. Jill Cohenour: Progress of the Water Policy Interim Committee**

Jill Cohenour is a resident of East Helena and is running for her fourth term representing Montana House District 78. She is a chemist for the State Environmental Laboratory. She has been a representative since 2003, and is currently serving on the Montana Legislature's Water Policy Interim Committee. She discussed the progress that the Committee was making.

Rep. Cohenour said that it's critical to make plans for the future in terms of water. Exempt wells that are being developed in closed basins are possibly to the detriment to the quality and availability of water for senior water right holders. The Committee believes "first in time, first in right" is the way to do business, and the Committee wants to empower local government to have control of what's going on in their local area.

The Committee is also working on a legislative proposal for a statewide hydrogeologic study to help provide local governments with the information that's necessary to make decisions related to surface and groundwater. The hydrogeologic study would start out with the fastest growing areas (which also have the highest rates of conflict), but hopefully would cover the entire state. Other goals that the Natural Resources Committee has include wanting to clarify authority in regard to water issues, and creating an incentive program for the development of community water and sewer systems. The committee desires and appreciates the involvement of everyone who is affected by these water resource issues.

### **Bill Gardner: Well Drilling**

Bill Gardner is a well driller and owns Liberty Drilling & Pump Company, Inc., in Kalispell. He has drilled wells across the United States. In addition to small diameter and domestic wells, he has also drilled large capacity production wells for municipal, industrial, agricultural and construction mining purposes. He has drilled at least 5,000 wells in Montana. He is a board

member of the Montana Water Well Drillers Association and a member of the National Groundwater Association.

Gardner noted that in terms of a well driller's role with water rights, it's not their responsibility. The driller will find the water but the owner has to make sure that the water isn't already appropriated. In the late 1980s, development picked up in western Montana, which in turn brought more demand for well drilling.

Gardner said that current groundwater use is only 2% of the total amount of groundwater in Montana. A problem could be that most of the water is deep beneath the surface, which could be expensive to drill for. Well drilling can be very surprising. One can have a functioning well and drill 100 feet away to no avail.

### **Randy Overton: Aquifer Storage & Recovery**

Randy Overton has been working with surface and groundwater quality/quantity issues for 34 years. He is employed by RLK Hydro. His presentation focused on explaining aquifer storage and recovery (ASR), in terms of what it is, who regulates it, and how it impacts public water supplies. He also reviewed a number of cases of ASR in other U.S. regions (which aren't reported here).

There's a difference between ASR and aquifer storage (AS). Formal ASR involves using a single well designed for both injecting and recovering water. It is more common with confined aquifers. In general, ASR is used to reach two objectives: to harvest excess water for later use, and to minimize the cost and impact of surface storage. Secondary objectives of ASR might be control of subsidence and prevention of salt/brackish water intrusion.

Spreading grounds, impoundments and recharge basins are commonly used to inject water into the aquifer with AS. Single purpose injection wells are used, and it is more commonly used with unconfined aquifers. This water is then recovered elsewhere in the aquifer using conventional wells and mitigation to protect wetlands and restore surface water flow.

The practice of ASR has been around for 25 years while AS has been practiced for almost 80 years. Spreading basins are most common for aquifer storage. The EPA took 50 sites where ASR and AS occur (20 fresh and 30 brackish water). It found that well clogging due to sediment, precipitation, and organic fouling was common. Consequently, many ASR/AS projects had to be redeveloped. Also, the recovered water was found to contain various metals and radionuclides. Because of these problems, both ASR and AS are controversial.

When it comes to regulation of ASR and AS, both ASR and AS wells are Class V wells under 40 CFR Part 146 UIC rules. Region 8 of the EPA has regulatory authority for these wells, not the state of Montana. If the recharge basin is wider than it is deep, it is not considered a well, and therefore not regulated. When one wants to begin an ASR or AS project, there is a litany of information that is required by the EPA. The requested information is similar to requirements listed in HB 831. The National Primary Drinking Water Regulations also come into play, along with well construction rules and requirements for spreading and recharge basins.

Legal issues with ASR/AS can get complicated. Once the water is injected, there is no clear definition of who owns the water. Also, there is no law that covers what happens if the water is lost and adverse water quality impact other users.

In terms of impacts on the public water supply, regulatory controls on ASR, such as the permitting process, mostly eliminated the practice of injecting water of impaired quality. Injection can cause changes to mineral solubility and minerals can enter the water. Water quality and quantity impacts are highly dependent on the situation of the AS/ASR.

Overton believes that AS/ASR is well-supported by Montana water right statutes and rules as they exist today, but that such projects are very complex.

### **Panel: Potential Sources of Water for Growth**

#### **Mike McLane: Water for Future Projects - Are New Approaches Needed?**

Mike McLane is a Water Resources Specialist for the Montana Department of Fish, Wildlife and Parks (DFWP). His presentation focused on the current situation of water rights and what could happen in the future.

According to the DNRC Record System, there were 92,822 total water right holders in the Clark Fork in 2004. Of those, 66,983 rights were groundwater uses and 25,839 were surface water uses. Groundwater uses were mostly made up with domestic uses, while surface water uses were for hydropower, irrigation and municipal water supplies. Over 60,000 water rights came after 1970, with the vast majority of those (over 53,000) being groundwater certificates.

There are records of more than 58,000 wells in the Clark Fork basin, 40% of which have been installed since 1990. Around 52% of those wells are located within one mile of streams. Approximately 40% of the wells are in shallow alluvium, 17% are in deep alluvium, and 11% are in bedrock. It is not known what the other 33% of the wells are in.

There are four ways to close a basin: through legislation, administrative rule, compacts, or judicial order. Once the basin is closed, it means that all of the surface water has been claimed. In the past, one could simply apply for a permit through the DNRC. Now, there can be market exchanges between private parties, including Temporary Change of Use provisions, the Salvage statute, and in-stream flow water leasing. There is also a yet-to-be implemented state-run program called the Water Leasing Program. The DNRC would hold and acquire water either from new or existing storage reservoirs, and would re-market the water via leases.

McLane had eight suggestions to help with the water problem: water conservation, increased administration, using existing storage, an active water leasing program, substituting water supply plans, changing policy, groundwater recharge, and water banking. With increased administration, McLane suggested that water commissioners could be set up either basin-wide or for sub-basins. They would sort through issues such as who has the right to use

water, how much, and when.

Hungry Horse reservoir and some of its as of yet unallocated federal waters (i.e., BOR) has been eyed by Montana as a possible source of water to allocate to new uses. Its waters are currently being used for hydropower production, flood control, and fisheries habitat mitigation. In order to use the water, it would have to be verified that the existing uses wouldn't be affected. An investigation and analysis would have to take place.

When it comes to substituting water supply plans, McLane brought up that most new uses are for domestic and urban demands which do not adapt well to prior appropriation. A mechanism is needed to address shortages.

McLane said more information is needed to alleviate the problem of water availability. He went on to say that in terms of water planning there should be decisions made on the local level, but the state government needs to make decisions as well.

### **Brian Marotz: Hungry Horse Dam Operations**

Brian Marotz is the Hydropower Mitigation Coordinator for the DFWP. His presentation focused on Hungry Horse Dam operations for hydropower generation, flood control, and fisheries mitigation.

Hungry Horse Dam is on the South Fork of the Flathead River. The Hungry Horse reservoir stores spring snowmelt, and is at its maximum level during July. This provides flood control benefits. According to Marotz, Hungry Horse affects four states, at least two federal agencies, 19 tribes, and every one of those parties wants some of the water from the reservoir. It is one of the most important places in the world for two types of fish: the bull trout and the Westslope Cutthroat trout.

The reservoir pool is drawn down around 20 feet in August to enhance river flows to aid salmon smolts downstream in the Columbia River system can find their way to the Pacific Ocean. In the fall and winter months, the reservoir is used to generate hydroelectricity.

Originally, the reservoir was drawn down deeply to capture the entire spring snowmelt and maintain minimum river flows during the runoff period. In 2001, a variable flow flood control strategy, called VARQ, began. The strategy is supposed to reduce drawdown of the reservoir, improve reservoir refill probability, and restore a more natural river flow pattern within flood constraints.

The minimum flow in the Flathead River at Columbia Falls is 3,500 cfs, and Hungry Horse releases water to maintain that flow in drier years. The reason why this is important is because 3,500 cfs is the minimum amount needed to keep riverbeds wet.

## **John Carter: The Confederated Salish-Kootenai Tribes and Water**

John Carter is a lawyer with the Confederated Salish-Kootenai Tribes (CSKT). His presentation focused on the Tribe's perspective of water resource issues for western Montana.

Tribal water rights laws are federal, and are entirely different than what exists in state law. They are aboriginal rights, which are rights that predate treaty times. Their rights date to “time immemorial”, which is before any other right existed. Most of the rights are non-consumptive, and are for fisheries, protection of water quality and use, cultural uses, and agriculture.

Tribes also have reserved water rights, which are keyed to the date of an Indian treaty. The Flathead Reservation rights are keyed to the Hellgate Treaty of 1855. The rights afford the tribe all water rights necessary to satisfy all of the purposes for which their Indian reservation was created. The treaty ceded aboriginal territories to the United States (in this case, western Montana).

The CSKT and the Reserved Water Rights Compact Commission are negotiating a compact for the Tribe's use of the basin's waters because when it comes to resolving water rights disputes, you can either litigate or negotiate. The United States government has the ability to intervene in negotiations if they are not kept informed of what happens. If the Tribe concedes an amount of water in the negotiation, there may be money appropriated to the Tribe.

There is no single law that can govern Indian water rights. The Flathead Allotment Act was passed in 1904. It allotted a certain amount of land to each member of the Tribe, and the rest was opened to non-Indian settlement. It authorized the Flathead Indian Irrigation Project to enhance agriculture on the reservation; it was built for benefit of people on reservation. When the Water Use Act came in 1973, it was dealing with a mishmash of existing rights that nobody could easily identify, claim, or quantify.

When it comes to the Hungry Horse issue, the Tribe is willing to step back from asserting its full spectrum of rights and negotiate as long as improvements in the system are dedicated to bringing in-stream flows up to where they ought to be. This could help with getting more water into the Clark Fork basin, but this could take a long time. An example given was the settlement of the simplest water compact in Montana with the tribes of the Rocky Boy's Reservation. There were six non-Indian claims on the reservation and it took six years to settle.

## **Conference Summary**

### **Matt Clifford: Summary**

Matt Clifford is an attorney for the Clark Fork Coalition and a member of the Clark Fork Task Force. He was charged with summarizing the content and themes of the conference.

Western Montana is experiencing a lot of growth. Clifford noted that there are a lot of aquifers connected to our surface water. He stated that the main reason why people were here was to

discuss what is going to happen with the water in those aquifers. He said the major problem is not necessarily 35 gpm exempt wells, but large-scale subdivision. Clifford thinks that eventually, there will be a system to rein in this new demand. The prior appropriation system is not set up to deal with this new use of subdivisions. He predicted that the two year change of use process would be changed and made more efficient.

He said that there isn't consensus that we have a problem. He did say that for certain tributaries, there is a measurable impact. He agreed that a hydrogeological study was needed. He agreed with the theme of local government control over water issues. He said that the current laws were not meant to deal with the kind of growth that the area is experiencing.

## **GROUP DISCUSSION SUMMARIES**

On March 11, 2008, participants in the conference on the Water Supply and Growth in the Clark Fork River Basin met in nine breakout groups to discuss problems with the present water and growth management system and ideas for approving both. Ideas from each group were recorded on a flip chart. After the breakout session, the conference participants reassembled in a plenary session to report the results of their individual groups. A summary of each group's report follows, along with a transcription of each group's flip chart.

**Groups 1 & 2 - Note: groups 1 & 2 were combined.**

### **Summary of the Group Report to the Plenary Session**

- Do we have a problem?
- One concern is the lack of consideration of cumulative impacts.
- While providing counties additional authority to consider water in planning decisions, they lack the necessary expertise to do.
- Try a water planning process similar to land use/capability planning. Focus on areas suitable for development rather than on mitigation.
- A legislative proposal to allow counties to require community water systems should be based on hydrologic/geotechnical assessment/capability.

### **Flip Chart Notes**

#### **Concerns**

- No consideration of cumulative impacts of either water development or division of lands.
- Attorneys tell counties that they cannot look at cumulative impacts.
- Counties do not have expertise to judge ground water impacts.
- County attorney to require.

#### **Proposal**

- Water planning similar to land planning is needed to identify water short areas and areas where development should occur.
- Lake County density maps.
- Could help to require community wells, but must take into account unique locations and unique size of the subdivision.
- Redefine "combined appropriation" to apply to projects, including subdivisions.



### **Group 3**

#### **Summary of the Group 3 Report to the Plenary Session**

##### **Concerns:**

- County authority regarding water quality and quantity needs to be expanded.
- Water marketing can provide mitigation for groundwater development; focus is needed on how to make a water rights market work.
- Disincentives and incentives are needed to encourage community supply and sanitation.
- Improve coordination among regulators.
- Clarify historical rights before they are changed.
- Improve basinwide information and analysis of water balance and hydro.
- Pre-permit drilling/water rights for developers.
- Ditch companies should be able to play in the mitigation arena.
- Pharmaceuticals in water supply.

##### **Solutions:**

- Wells should be exempt from subdivision permitting.
- Separate wells for indoor and outdoor use.
- Water right calls should be made only on wells supporting outdoor uses; a preference should be provided for indoor domestic use.
- More conservation.
- Complete the adjudication.
- Simplify the change process; consider allowing changes in the period of use.
- Measure withdrawals, use, etc., better.
- Improve communication.

### **Flip Chart Notes**

##### **Concerns**

- County authority to make local decisions over water quality, quantity and growth.
- Mitigation for ground water development will require facilitation of water marketing.
- Need guidance on how to market/sever/sell/evaluate water rights and potential buyers.
- Disincentives or positive incentives to community water supply and waste water systems.
- Need to improve coordination among regulators over water supply requirements/procedures.
- Need to clarify historical rights before changing them - coordination between adjudication and new appropriations permitting.
- Basin wide information and analysis for water balance is need.
- Do people need to drill the well first - and does it really need to take so much money and time to get a water right?
- Make it so that irrigation districts (ditch companies) have the right to market water for mitigation - allow them to do a bulk change (give them incentive).
- Concerns about pharmaceuticals.

##### **Solutions**

- All subdivision wells exempt from water right permitting - both individual lot wells and community wells - so incentive for community (fewer) wells. Separate wells for indoor

use/outdoor use so call can be made on outdoor uses.

- Promote conservation and reuse.
- Complete the adjudication process.
- Make the water right change process less difficult (period of use).
- Measure withdrawals.
- Communication.

#### **Group 4**

##### **Summary of the Group 4 Report to the Plenary Session**

- Provide an expedited way for subdivisions and developers that meet certain criteria to obtain permits.
- Better coordination among state and local government agencies (health, etc.).
- Promote affordability of development process and community or public systems, using techniques such as increased density.
- Plan for where growth should be directed.
- Provide incentives to use water and sewer infrastructure.

##### **Flip Chart Notes**

- Uses - Prioritizations, i.e., growth, illegal uses, irrigation, instream flows, hydro.
- Prioritize beneficial uses - options for growth:

Municipal/community if meet certain requirements.

Growing communities doctrine approach - incentive (examples)

Alternative is 60,000 acre feet irrigation (adverse affect; priority dates)

- Draw from deep aquifer to surface w/o recharging, e.g. Kalispell, Bitterroot.
- Reverse ditches recharging ground water
- Issues for different areas in the state.  
Perceptions.  
Public's understanding of benefits of solutions: quantity, quality, competing tie between distant and needs and users.
- How would perception affect public prioritization of use?
- How would "beneficial" be defined, good of whole or individuals?  
Personal property rights versus public health benefits  
Local control (if they have the will)
- Local/county differences in growth policies.
- Developers bypassing public systems because of time & economic requirements of existing system.
- Address this problem by streamlining the process, steer away from 35 gpm type wells, get mitigation water available.
- Protect senior users vs. expediting junior users.
- Water is going to limit growth.
- Growth will happen; need to maintain affordability.
- Growth needs to be smart.
- Incentives are needed to reward smart growth, e.g., reward low net consumptive uses with expedited permitting.
- Problem if water issues are seen to stop growth.

Locals need planning for growth.  
Funding needed.

- Recreation users concerns.
- Forcing development to agriculture lands.
- Create market for mitigation rights.
- Incentives for expedited rights/permits:
  - Apply to low consumptive uses.
  - Coordinate agencies efforts/agendas.
  - Affordability - density maximizes use of infrastructure.
  - Reasonable zoning plan that specifies where growth should occur and open space needs.
  - Property right issues.
  - Utilize existing infrastructure.
  - "Not in my back yard" and independence.
  - Exchange for exempt wells while protecting senior water rights.

## **Group 5**

### **Summary of the Group 5 Report to the Plenary Session**

- Existing laws push developers to individual rather than community systems.
- Require community water systems for new subdivisions, and make it easier and/or more attractive for developers to get the requisite water rights.
- Fire protection requirements are now a disincentive for community water systems. Fire related codes could help.
- Assess land capability for sanitation.
- Provide incentives for clustering development.

### **Flip Chart Notes**

#### **Concerns**

- Existing laws push developers toward individual wells and septic.
- Agencies, DNRC, DFWP, DEQ, and counties, need to get on the same paper and coordinating permitting process.
- Clustering?
- Community water systems don't have to worry about locating in septic mixing zones.
- Don't apply a one-size fits all solution; site specific geologic conditions matter. In some places little or no hydrologic connection to river and individual systems are not harmful.
- Existing incentives push subdivisions to "sneek below" regulatory thresholds, e.g., 5 lots or fewer.
- Fire protection?
  - Community systems - need to meet high-volume requirements.
  - Individual wells, no requirements.
  - No requirement for sprinklers.

#### **Ideas for Solutions**

- Require community water systems for every subdivision and make it easier to acquire water rights; no individual wells.
- Require metering to keep use down.

- Penalties: creek reasonable use thresholds for single-family homes, and penalties exceeding the thresholds.

## **Group 6**

### **Summary of the Group 6 Report to the Plenary Session**

- Local government perspective – we don't have the resources and in time to address the development we face. We need more communication with DEQ and agencies.
- Developers would appreciate zoning and certainty in the permitting and regulatory process.

### **Flip Chart Notes**

- Better rewards are needed for not using water.
- Sprinkler systems reduce return flow.
- Automated control and measuring systems reduce the amount of water needed for irrigation.
- A local entity with taxing authority is needed to conduct water planning and management.
- Rural counties face resource and timing challenges in working with developers.
- County resources need to be matched with state mandates. These mandates need to be more understandable to both counties and the state.
- Better communication is needed between DEQ and counties.
- We need zoning with carrots for water permitting
- Cumulative affects need to be addressed.

## **Group 7**

### **Summary of the Group 7 Report to the Plenary Session**

- Exempt wells – do they have a place in development? How are they monitored and regulated?
- The process for approving community water systems needs improvement and incentives.
- Future subdivisions might be required to use community systems.
- Increase our understanding of hydrologic systems.
- Increased education needed for local government.
- Zoning can confer advantages.
- Do some local water planning – budgets, supply, needs, etc.

### **Flip Chart Notes**

#### **Concerns**

- Current water right process discourages public water systems.
- Exempt wells encourage consumptive use of water; subdivision does not guarantee water.
- Why have exempt wells in closed basins:  
Administrative review is needed.  
Notice of intent.
- Purposes allowed for exemption/amount used - 10 acre feet too high for domestic use.
- DNRC needs to do a better outreach on steps necessary for water right permits.
- If state owns water why isn't there more fees/penalties for use beyond applying for a permit.
- Powell County zoning example - prevents subdivision "frenzy" but changes demographics to amenity ranch owners.

- Water plans needed on a basin basis especially in closed basins to allocate water; plans could require conservation measures for new uses.

County commissioners are trying to figure out what's available.

- In closed basins there is agreement that surface water was over allocated, but also a belief that ground water was abundant and pristine.

No restrictions on well distances from river.

- State hydrologic study - is it at an adequate scale; get involved; let the Montana Bureau Mines and Geology know questions; work with local groups (watershed, irrigation, conservation districts).

- By not being titled a closed basin, do local authorities have to worry about increased liability?

Permit processes very similar but need to have mitigation plan secured before submit application.

- Why not just close the Clark Fork basin?

#### Mitigation Ideas to Encourage PWS

- Smaller lot sizes - Exempt wells only for in-house use.

- Xeriscaping.

- Meter use.

- Develop best management practices by and for locals.

- How do you enforce exempt wells?

Follow-up public health is also at stake.

10 acre feet - How do you know use amount?

- Are water rights metered?

Reports are submitted and amounts reviewed by DNRC.

By statute, exempt in controlled ground water areas, DNRC cannot meter exempt wells, ditch riders, and water commissioners.

- Tie the subdivision review process to the water right process, including physically and legally available.

- No exempt wells and no unmetered water rights.

- Pharmaceuticals and personal care products (PPCPs) in drinking water are a concern.

- Public water systems need to be easy to get.

- Water rights should be required for new 35 gpm wells on all new lots.

- Encourage low impact development for all new lots.

- Need hydrogeologic studies statewide.

#### **Group 8**

##### **Summary of the Group 8 Report to the Plenary Session**

- More education is needed. We need to make connections between planning and site based decision making.

- Zoning and other tools can reduce arbitrary decision making.

- Mixing and isolation zones should be kept within individual property lines.

- Getting community systems is important but difficult and expensive. More infrastructure planning is needed.

- A statewide hydrologic/geologic study is needed.

- How can developers bear the cost of their development more fully?

### **Flip Chart Notes**

- Mixing and isolation zones to stay on properties.
- Funding needed for capital improvements/infrastructure planning.
- Greater community planning and discourse followed by action.
- Need education about the connection between land use planning and specific projects; locals should be empowered.
- Developers should pay full costs of development.
- Need a hydro study.
- Need a grassroots conversation.

### **Group 9**

#### **Summary of the Group 9 Report to the Plenary Session**

- This conference has been very comprehensive and looked at complex issues (e.g., water law primer, county commissioner authority, etc.)
- Review permit application process and emphasis on how to do things better rather than just on regulation.
- We need more emphasis on state of knowledge about our water resources.
- Local knowledge and involvement is important.
- More emphasis at local level on land use planning.
- Public hearings are often not representative (perhaps) of local sentiments.
- Predictability for landowners, developers, important.
- More emphasis on water conservation, and other, important.

### **Flip Chart Notes**

#### **Pros About the Conference**

- Diverse comprehensive look at complex issues.
- Good primer on water law.
- Identified options about policy and regulatory responses:  
County commissioners can decide how water is delivered.
- Provide incentives to “do right” rather than regulations on “what not to do.”
- Zoning should be grassroots.
- Need public education.
- Avoid or overcome adversarial relationship between planners and citizens.
- Supplements needed for public hearings (surveys, non-binding or binding ballot measures).
- Generate interest outside of select few.
- Data on soil and water, etc., statewide.
- Trying to satisfy everyone results in no predictability with resources; maybe need to realize demand won’t be satisfied by supply.
- Preventative measures supported by zoning.
- Give owners tools for individual water conservation measures.
- Changing demographics, income, age, population, will also change resource needs.
- Need more enabling of local decision-making or cross-pollination of data, regulations, planning etc.

## **Group 10**

### **Summary of the Group 10 Report to the Plenary Session**

- Ditto.
- Recognize that it takes all of us to support the activities related to water planning, progressive policies, etc.

### **Flip Chart Notes**

- Statewide hydrologic assessment is needed; a side benefit of such an assessment is identification of gravel sources.
- Have a local water quality/quantity commission.
- Provide feedback/activity participate in interim Water Policy Committee.
- Support extension of the interim Water Policy Committee.
- Modify laws to promote community water systems; we still have a need for exempt wells.
- Promote planning/zoning to grow smart.
- Finish the adjudication and address pre- and post-1973 water rights.
- Enforcement.
- Education for real estate agents, people who value water, local water quality districts.
- Education to keep the adjudication process going.

## **LIST OF ACRONYMS AND ABBREVIATIONS**

acft: Acre-feet

AS: Aquifer storage

ASR: Aquifer storage and recovery

BOR: United States Bureau of Reclamation

cfs: Cubic feet per second

CKST: Confederated Salish & Kootenai Tribes

DEQ: Montana Department of Environmental Quality

DFWP: Montana Department of Fish, Wildlife & Parks

DNRC: Montana Department of Natural Resources & Conservation

EPA: Environmental Protection Agency

gpd: Gallons per day

gpm: Gallons per minute

HB: Montana House Bill

MCA: Montana Code Annotated

MSPA: Montana Subdivision & Planning Act

SB: Montana Senate Bill

TRL: Thompson River Lumber Company

VARQ: Variable flow flood control strategy

VNRP: Voluntary Nutrient Reduction Plan



## **Biographical Information for Panelists, Presenters, & Moderators**

- **Tim Bryggman**, Montana Dept. Natural Resources & Conservation Economist
- **Jim Carlson**, Missoula County Environmental Health Department
- **John Carter**, Confederated Salish and Kootenai Tribal Representative
- **Matt Clifford**, Clark Fork Coalition & Clark Fork River Basin Task Force Member
- **Rep. Jill Cohenour**, Montana Legislature's Water Policy Interim Committee
- **Tim Davis**, Montana Smart Growth Coalition
- **Senator Jim Elliott**, Water Policy Interim Committee Chair
- **Holly Franz**, ESQ & Clark Fork River Basin Task Force Member
- **Bill Gardner**, Liberty Drilling
- **Arvid Hiller**, Mountain Water Company & Clark Fork River Basin Task Force Member
- **Michael Kakuk**, ESQ
- **Dick King**, Missoula Area Economic Development Corporation
- **Brian Marotz**, Montana Dept. Fish Wildlife & Parks Hydropower Coordinator
- **Mike McLane**, Montana Dept. Fish Wildlife & Parks Water Resources Specialist
- **Gerald Mueller**, Consensus Associates and Clark Fork River Basin Task Force Facilitator
- **Dr. Michael Nicklin**, Nicklin Earth & Water
- **Randy Overton**, RLK Hydro
- **Susan Ockert**, Montana Dept. Commerce Census and Economic Information Center
- **Eric Regensburger**, Montana Dept. Environ. Quality Subdivision Review Program
- **Bill Schultz**, Montana Dept. Natural Resources & Conservation Regional Water Resources Manager
- **Myra Shults**, ESQ
- **Dr. David Shively**, University of Montana Associate Professor of Geography
- **Marc Spratt**, RLK Hydro & Clark Fork River Basin Task Force Member
- **John Tubbs**, Montana Dept. Natural Resources & Conservation Water Resources Division Administrator
- **Anne Yates**, Montana Dept. Natural Resources & Conservation Deputy Legal Counsel for Water

## Water Law Primer: Holly Franz

### Water Law Primer

#### WATER SUPPLY AND GROWTH IN THE CLARK FORK RIVER BASIN

March 10-11, 2008

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406-442-0005 phone  
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hollyjo@franzdriscoll.com

### Basic Water Law Principles

- Use it or lose it
  - Beneficial use is the measure, limit & extent of a water right
  - Waste is prohibited
  - Abandonment – not using water for ten or more years, when water is available, raises a rebuttable presumption of abandonment
  - Does not apply to federal & tribal reserved rights

### Water Right Ownership

- Real Property Interest
- Usufructory (use) right – do not own the water itself
- State owns the water subject to appropriation for beneficial use
- Constitutional protection - cannot affect pre-July 1, 1973 water rights without due process of law

### Water Use Act

- Prior to July 1, 1973
  - Acquire rights by use, filed notices of appropriation, or district court decree
  - Subject to adjudication by the Water Court
  - No pre-approval for changes in use
- After July 1, 1973
  - New water rights require a permit from DNRC
  - Changes in use require authorization from DNRC

### Basic Water Law Principles

- First in time is first in right
  - Water users with an earlier priority date are entitled to divert their full water right before a junior water user, with a later priority date, diverts any water
  - No sharing of shortages
  - Senior can place a call on any junior water right on a tributary source, including groundwater – do not have to make call on the most junior right
  - Whenever water is not being used by a senior, it is available for use by the next senior junior
  - No preference by purpose of use

### Exceptions to DNRC Permit Requirement – 85-2-306

- Groundwater less than 35 gpm up to 10 acre feet per year
- Stock pond less than 30 af/yr on non-perennial source serving 40 acres or more

## DNRC Permitting Criteria

- 85-2-311 criteria
  - Physically available at point of diversion
  - Legally available during period of appropriation
  - No adverse affect to senior water rights
  - Adequate means of diversion, construction & operation
  - Beneficial use
  - Possessory interest
  - Water quality

## DNRC Change Criteria

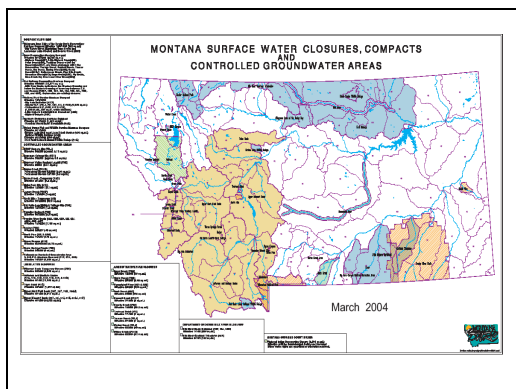
- 85-2-402 criteria
  - No adverse affect to other water rights, both senior & junior
  - Adequate means of diversion, construction & operation
  - Beneficial use
  - Water quality
- Generally, need to show no increase in consumptive use

## Permit applications cannot be filed in some areas


- Basin closures in highly appropriated areas
  - Upper Missouri River
  - Madison/Jefferson River
  - Teton River
  - Upper Clark Fork River
  - Bitterroot River
  - Milk River
  - Musselshell River
- No new permits for most surface water uses
- Ground water permits are allowed only if impacts to surface water are mitigated

## Burden of Proof for Permits & Changes

- Applicant must prove all of the criteria by a preponderance of evidence regardless of whether an objection is filed
- If permit or change is for more than 5.5 cfs and 4,000 af/yr or is for out-of-state use, burden of proof is clear and convincing evidence & additional criteria apply
- Changes for out-of-state uses require legislative approval



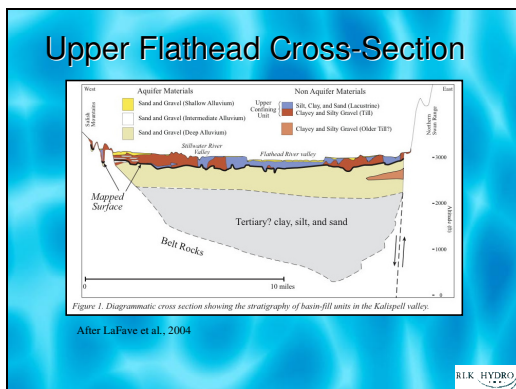
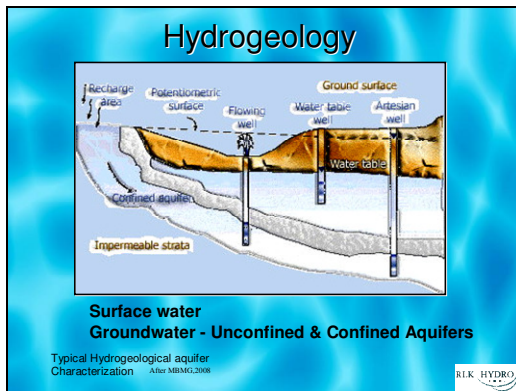
# Basin Water Supply Facts: Marc Spratt



**Water Availability in the Clark Fork Basin**

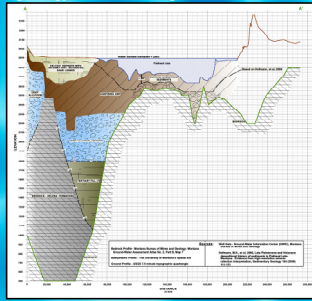
Water Supply and Growth Conference  
March 10 - 11, 2008  
University of Montana  
Clark Fork Basin Task Force  
Missoula, Montana

Marc M. Spratt CPG, PH, CGWP  
Sr. Hydrogeologist  
RLK Hydro, Inc.  
Kalispell, Montana



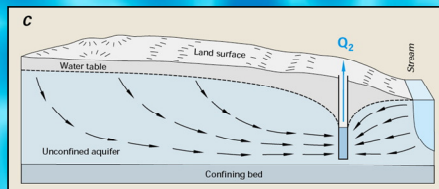
## Hydrogeology- the twist

- Basin geology - varies among basins.



RLK HYDRO

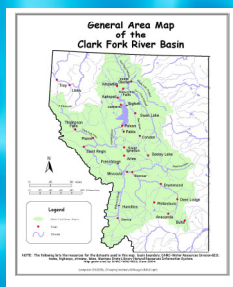
## Hydrogeology - Alluvium



Typical surface water/groundwater connection

RLK HYDRO

## The Basin



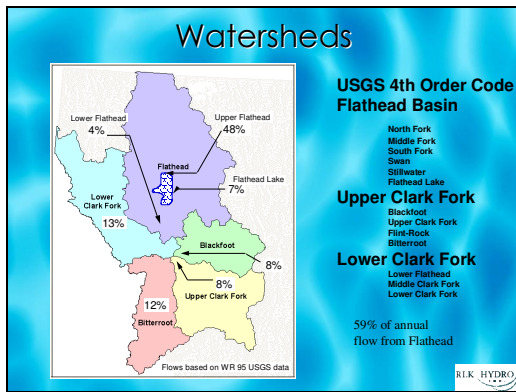
Area - 21,833 Sq Miles  
13,973,120 Acres

Dimensions  
290 miles long  
75 miles wide

Consists of  
13 sub-basins

Average Annual  
Discharge  
20,300 cfs  
14,700,000 ac-  
ft

RLK HYDRO

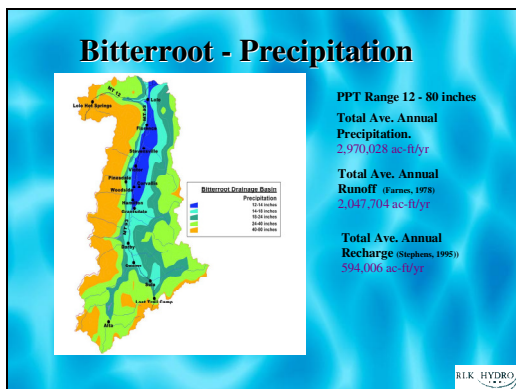
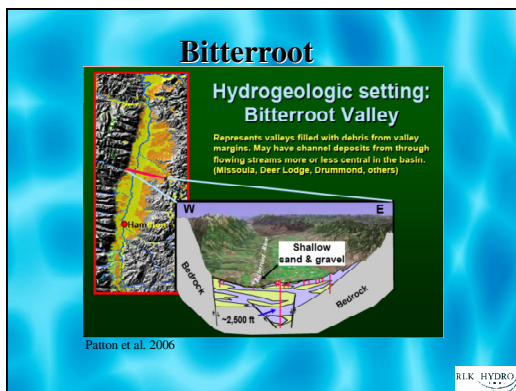


Adjudication does not address physical availability

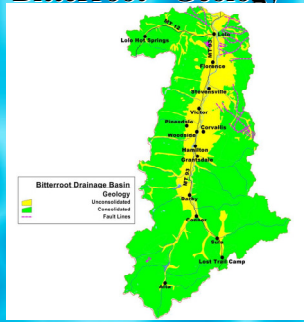
The 2 final decrees may be reopened.

Compacts may redefine decrees

How to manage decreed basins is being discussed eg entire Clark Fork or Missouri as one basin or as sub-basins, need for water masters, method to relate groundwater to surface water.

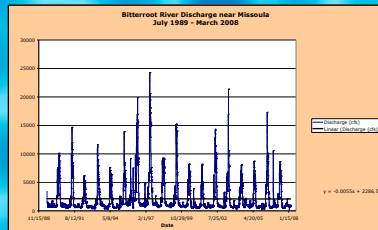


## Bitterroot - Geology



R.L.K. HYDRO

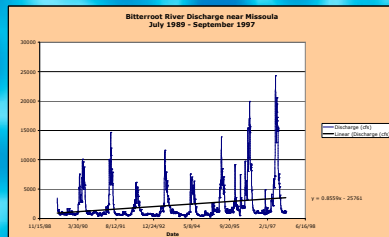
## Bitterroot - Discharge



Note: Small negative trend with drought years included.

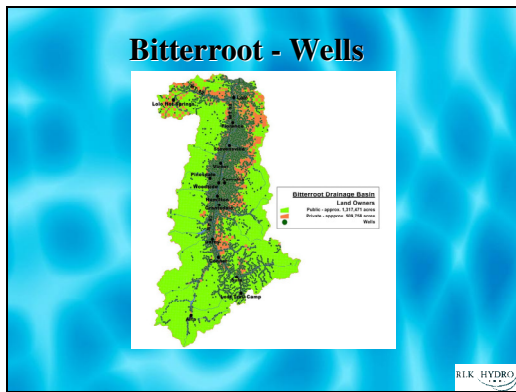
R.L.K. HYDRO

## Bitterroot - Discharge

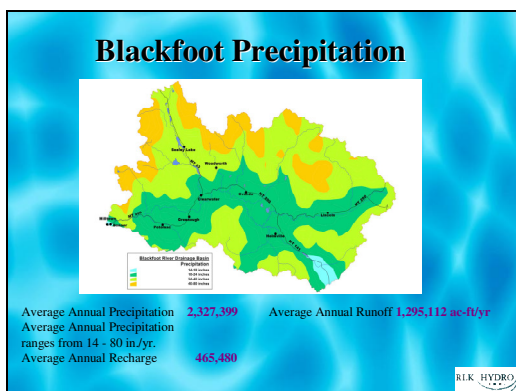


Note: Positive trend prior to drought.

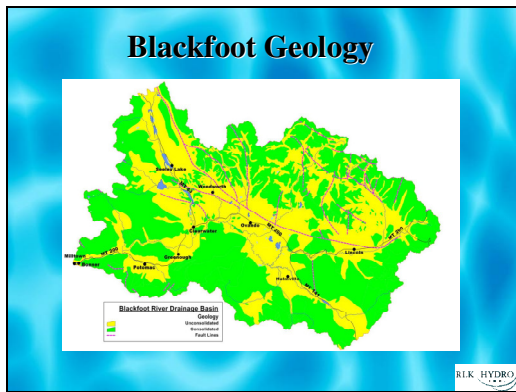
R.L.K. HYDRO



- ### Bitterroot - Well Impact
- A regression analysis of the number wells against the difference in base flows suggests no significant relationship (LaFave, 2007).
  - There was a much better correspondence between long-term annual precipitation data and the difference in base flows (LaFave, 2007).
  - Ground-water use represents a minor percentage of water that is stored in, and transmitted through, the shallow basin-fill aquifer (LaFave, 2007).
- R.L.K. HYDRO

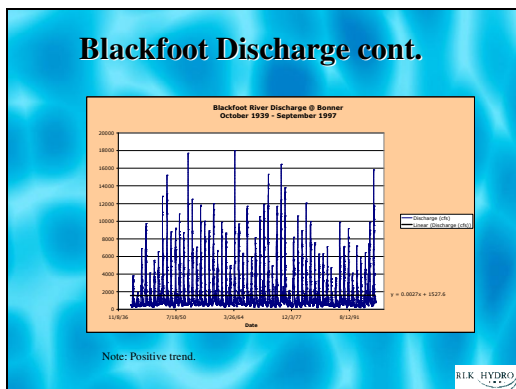
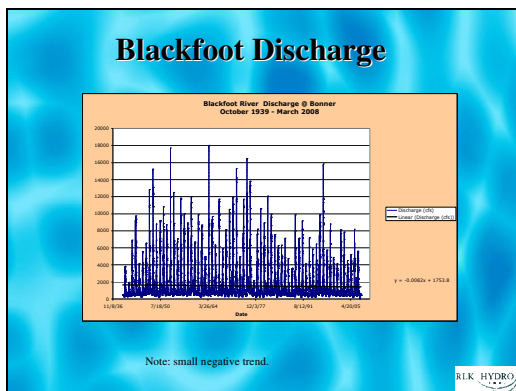




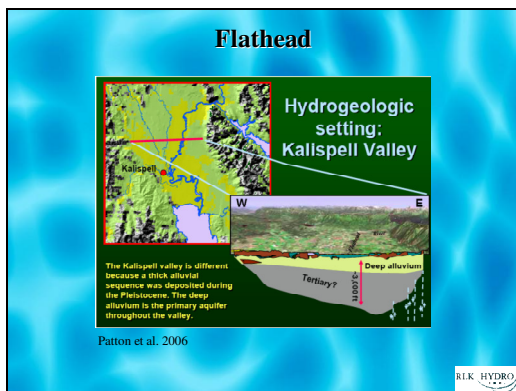
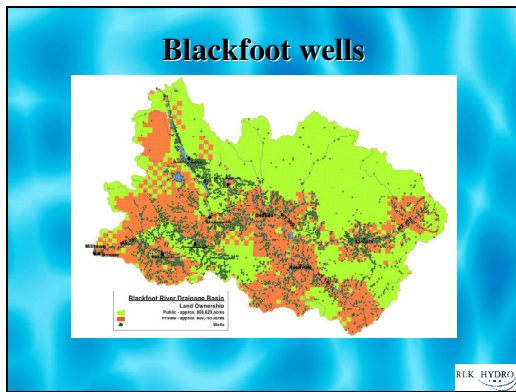


Clark Fork Basin - new surface appropriations slow dramatically in 1970 while gw appropriations accelerate but for significantly smaller volume.

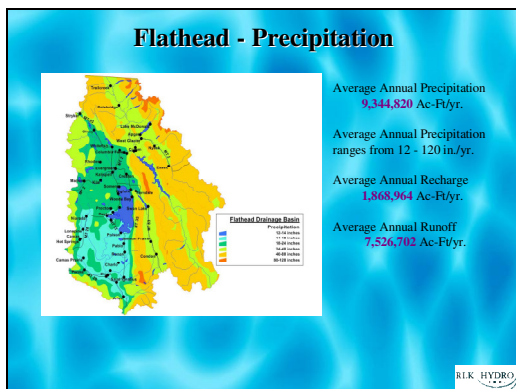
Consumptive use appropriations continue to increase with no impact on discharge - need accounting for return flows



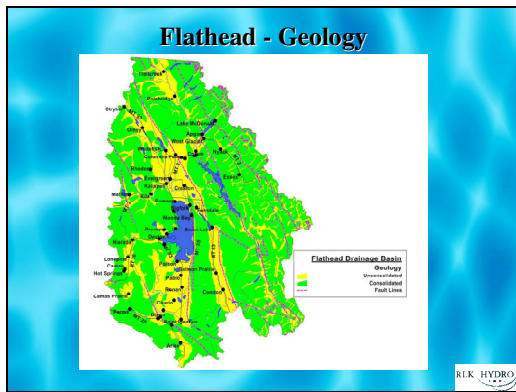
Extraction of drought 1997 - 2008 leaves an upward trend in discharge.



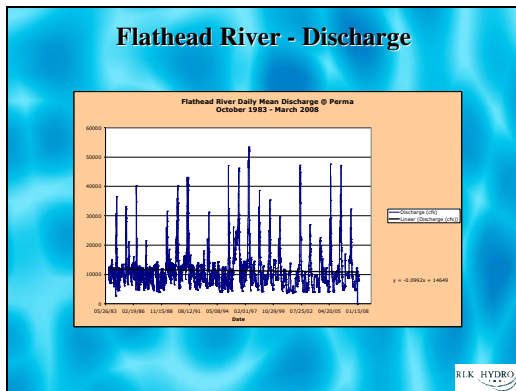
Most of the population growth is in the western 1/3 of the State.



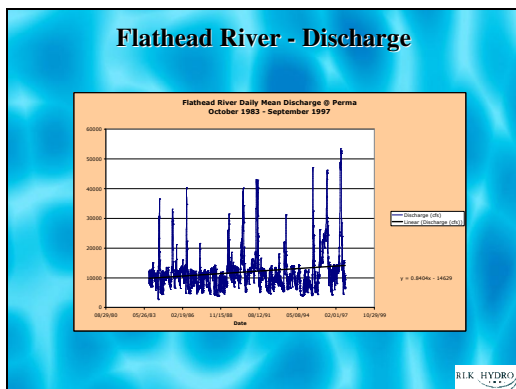
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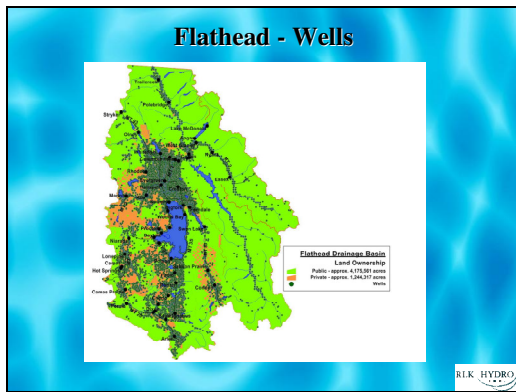
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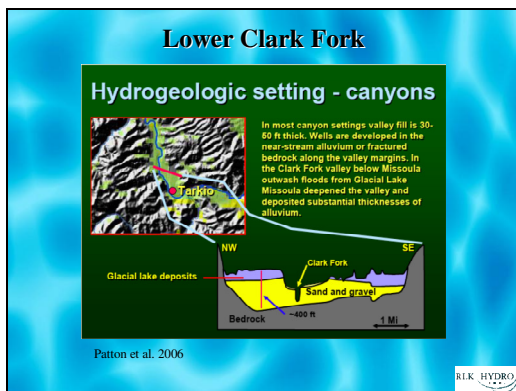
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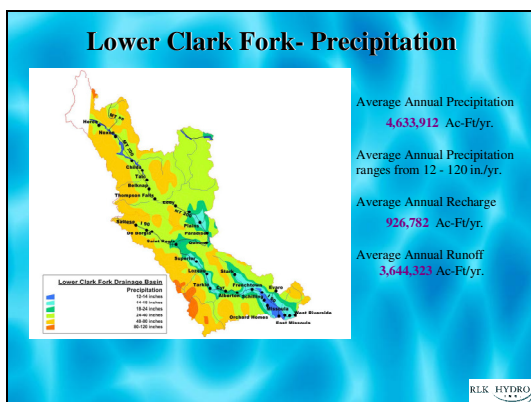
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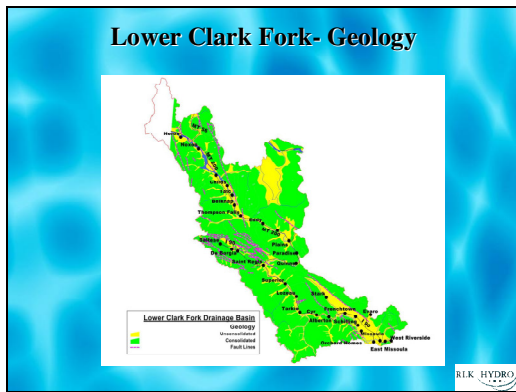
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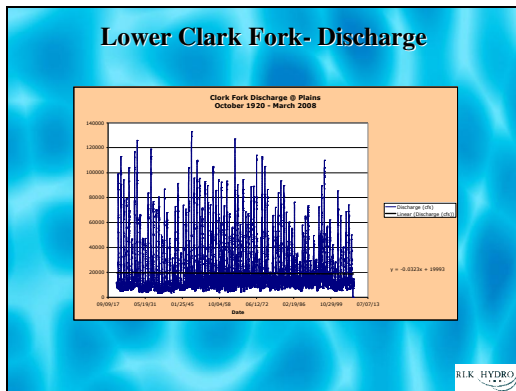
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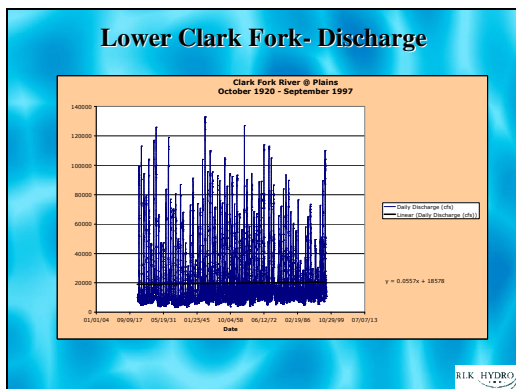
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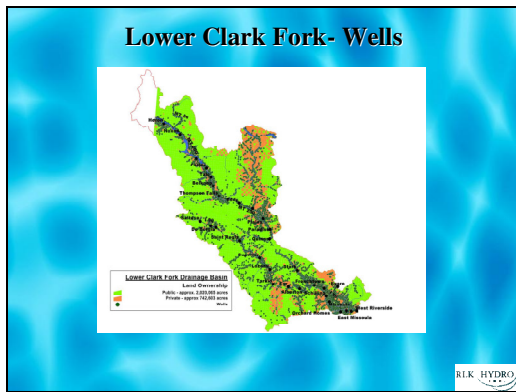
Most of the population growth is in the western 1/3 of the State.



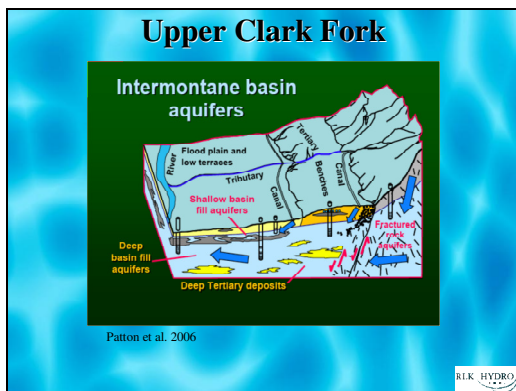
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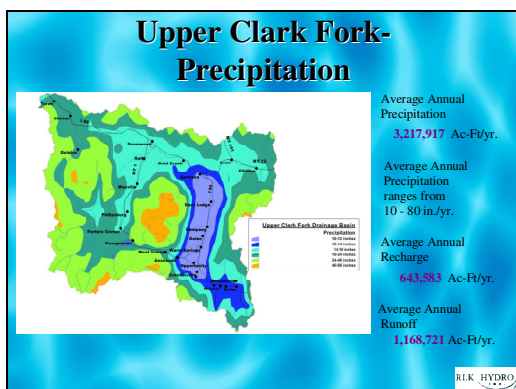
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Most of the population growth is in the western 1/3 of the State.

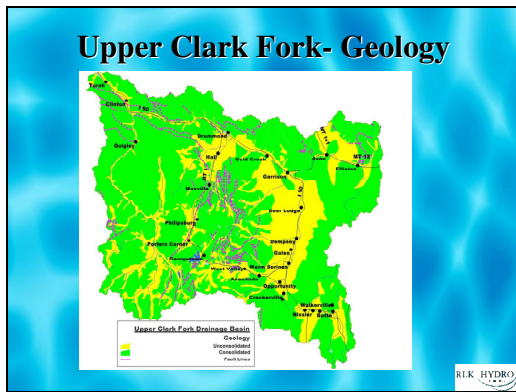


Water in Montana comes primarily from snowpack.

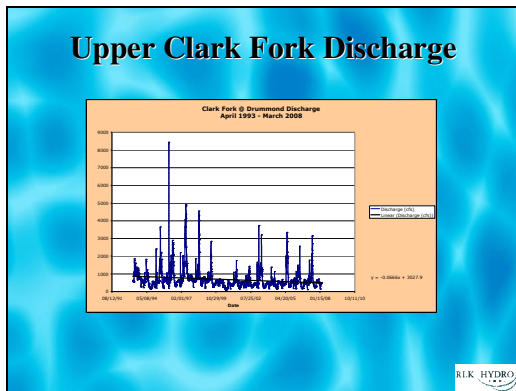


Water in Montana comes primarily from snowpack.

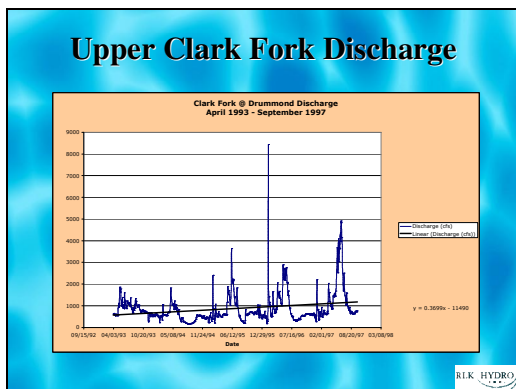


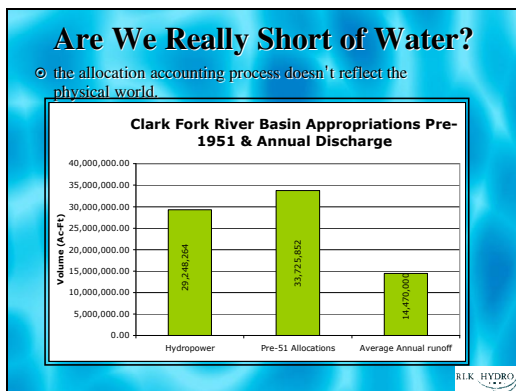
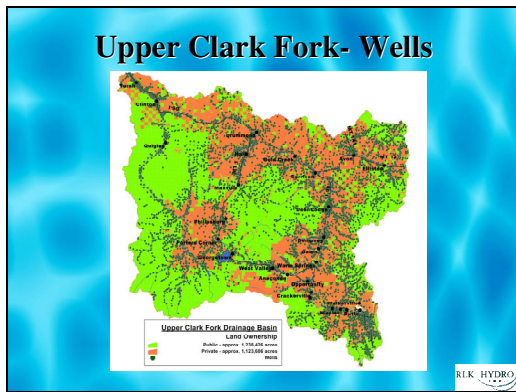


Water in Montana comes primarily from snowpack.

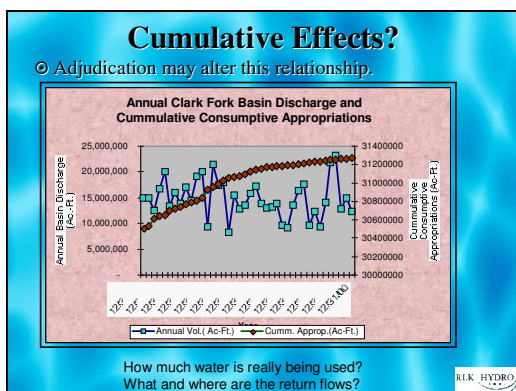


Water in Montana comes primarily from snowpack.





A conflict exists between legal and physical availability. Allocations need to include return flows and actual consumptive use. There are issues of scale as well. Note that over 2X the annual discharge in the CF were allocated before the lower hydropower facilities were placed online. The upper CF is a different story.



Earlier in our discussion we talked about cumulative impacts. Note on this slide that the variation in discharge remains fairly constant while consumptive appropriations continue to increase with time. Availability depends on stream order, geology, basin precipitation.



### Summary

RLK Hydrom

MBMG.2006

- Estimated Consumptive Use in CF Basin - 0.5 MM Ac-ft/yr 0.57
- Total Precipitation in Basin 22.5 MM Ac-ft/yr 22.06
- Estimated total annual recharge 4.5 MM Ac-ft/yr
- Total annual Runoff 15.7 MM Ac-ft/yr 13.74
- Estimated Annual Evaporation,

Transpiration consumptive use 2.3 MM Ac-ft/yr 7.75

Consumptive use not affecting sub-basin annual discharge.  
Climate (drought) is affecting sub-basin annual discharge.  
At least in the instance of the Bitterroot, groundwater development is not affecting stream discharge.

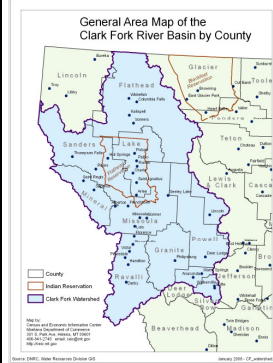
RLK HYDRO

# Demographics of the Clark Fork Basin: Susan Ockert

## Water Supply and Growth in the Clark Fork River Basin Conference

Demographics of the CFRB  
March 10, 2008

Susan Ockert  
Senior Research Economist  
Montana Department of Commerce



County	% CFRB
Deer Lodge	99.6%
Flathead	99.5%
Granite	100%
Lake	100%
Mineral	100%
Missoula	100%
Powell	100%
Ravalli	100%
Sanders	100%
Silver Bow	99.1%
Flathead Reservation	100%
Lewis & Clark	3.1%
Lincoln	1.8%

## OVERVIEW

### • POPULATION: Total and By Age

- Historical
- Current
- Projected

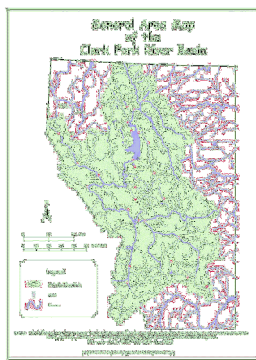
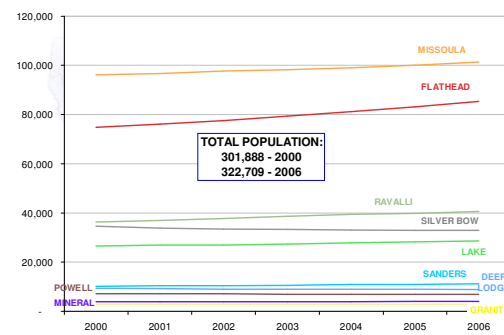
Components of Population  
• Births  
• Deaths  
• Migration

### • MIGRATION

- Number
- Income



## TOTAL POPULATION BY COUNTY

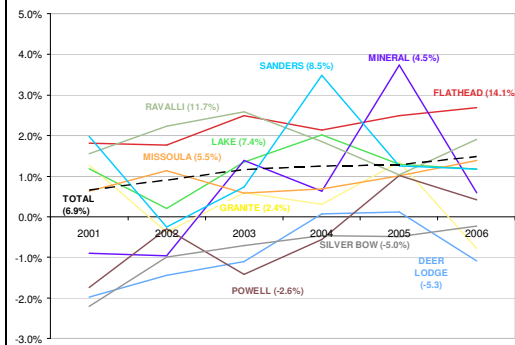


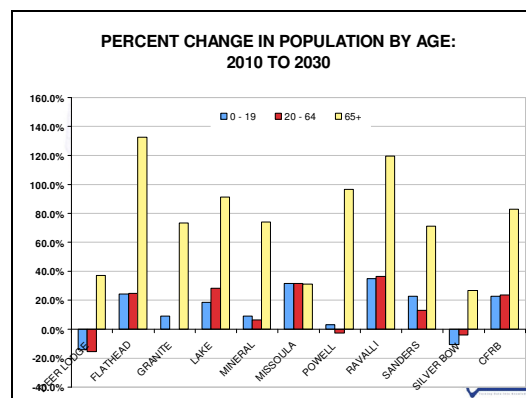
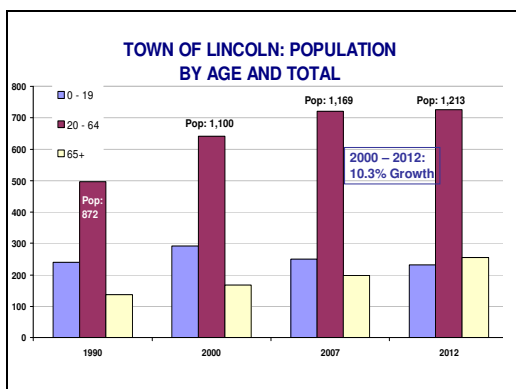
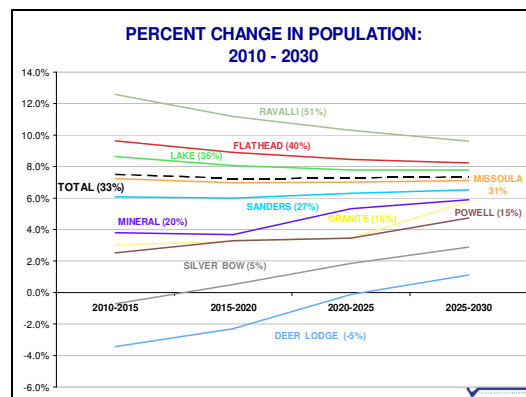
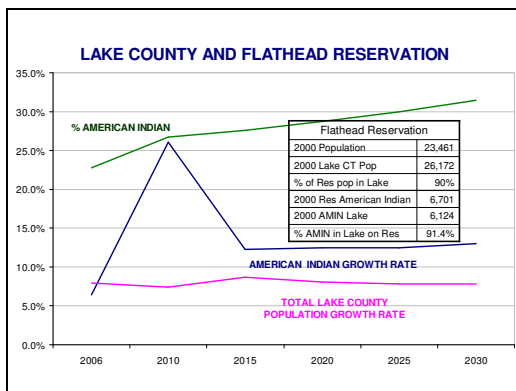
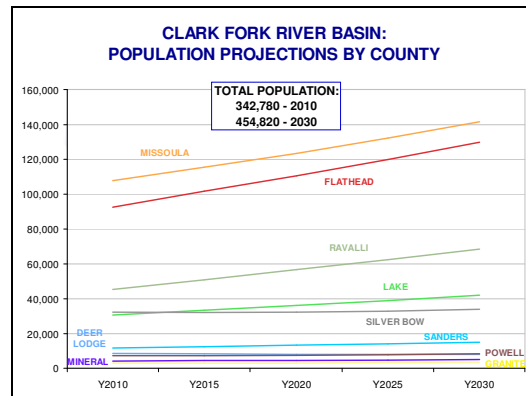
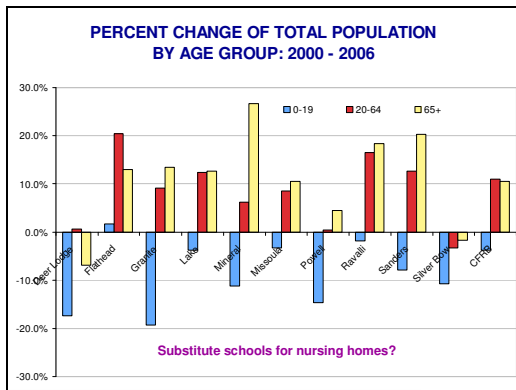
### To determine demographics of Clark Fork River Basin

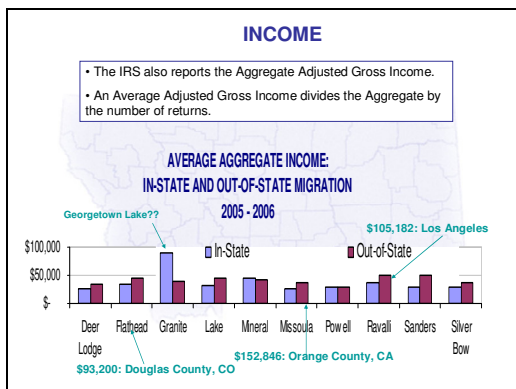
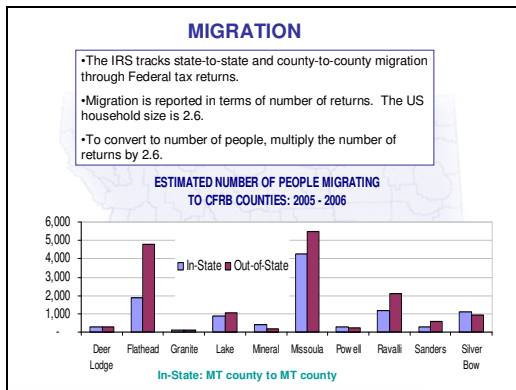
- Overlaid county boundaries
- Stripped out all blocks not within boundaries
- Compared new total to 2000 Census total



## PERCENT CHANGE IN POPULATION: 2000 - 2006







### Contact Information

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 Department of Commerce  
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 (406) 841-2740  
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[www.ceic.mt.gov](http://www.ceic.mt.gov)

### SUMMARY

- Population growth rates projected to slow between 2010 to 2030
- CFRB population will age similar to all Montana and the nation
- Income of people migrating into state tends to be higher than people moving within Montana

## The Clark Fork Basin's Economic Profile: Dick King

*A great place to live  
Is a better place to work*



### Clark Fork River Basin: Economic Profile

March 10, 2008

### Labor Force Trends

- The average annual labor force in the Basin increased 6.6% between 2000 and 2006 (reaching 166,194)
- Employment in the Basin grew 8.4% during the same period (reaching 160,420)
- Employment in Montana grew 6.6% between 2000 and 2006

### The Clark Fork Basin

- Granite, Lake, Mineral, Missoula, Powell, Ravalli and Sanders Counties (100%)
- Silver Bow, Deer Lodge & Flathead (99%)
- Small portions of Lewis & Clark and Lincoln Counties
- 2000 population of the Basin: 302,739 (34.4% of state's total)
- 2006 population: 324,634
- 7.2% increase since 2000

### What are our most important industries?

- % GDP—Government, Real Estate, Retail
- Employment—Government, Retail, Health Care
- Wages—Federal Civilian, Utility, Mining
- Receipts—Agriculture, Oil & Gas, Tourism
- Exports—Manufacturing, Agriculture, Mining

### Population Growth is Uneven

- 68% of the Basin's total population resides in Flathead, Missoula and Ravalli Counties
- These three counties accounted for 92% of population growth in the Basin since 2000
- Population projections show consistent growth to 2020
- Growth in counties such as Silver Bow, Sanders and Lake is likely

### Points to Ponder

- Residential development at the rate of one home for every two acres is unsustainable (just ask Jared Diamond)
- Developments like the Bitterroot Resort have environmental benefits when compared to the alternative
- Industrial sites in the Clark Fork Basin are important assets (energy production, biomass utilization, manufacturing)
- Foreign investment will increase, but water resources are critical

**Future Water Demand in the Clark Fork Basin**  
Tim Bryggman  
Department of Natural Resources and Conservation  
*Water Supply and Growth in the Clark Fork River Basin*  
March 10—Missoula

DNRC has estimated future water demand for the Clark Fork Basin as part of the effort to obtain water service contracts from the U.S. BOR's Hungry Horse Reservoir.

**Background**

- Clark Fork River Basin Task Force's 2004 Watershed Management Plan recommended that DNRC explore options for contracting for water from Hungry Horse Reservoir to meet increasing demand for water in western Montana.
- Task Force's Plan largely adopted as State Water Plan section in 2005.
- 2005 Legislature's House Joint Resolution No. 3 urged DNRC to "enter into negotiations with [BOR] to determine the availability and cost of water stored behind Hungry Horse Dam" and to report on "the results of these negotiations."
- DNRC began discussions with BOR in 2006 and submitted its report in December 2006.

**Contracting with BOR**

- Contracted water would likely be used to offset impacts of new municipal and industrial uses throughout the basin to senior downstream water rights.
- Contracting process includes several technical, negotiation, and approval steps as well as compliance with NEPA, Fish and Wildlife Coordination Act, National Historic Preservation Act, and Endangered Species Act.
- One of the initial steps is a Cost Reallocation Analysis required to allocate project costs to authorized, new purposes under anticipated new operation criteria.
- Costs of the analysis are to be borne by the party requesting the contract—in this case, the State of Montana.
- The 2007 Legislature appropriated \$260,000 to DNRC to pay for BOR's cost reallocation analysis for Hungry Horse Reservoir.
- To begin the analysis, BOR will require a proposed project use and an associated annual water volume on which to base the analysis.

**Basin Population Projection**

- Clark Fork Task Force's Watershed Management Plan included basin population estimates of 266,014 for 1990 and 316,188 for 2000—an increase of 19 percent.
- Extrapolating that rate provides estimated basin populations of 375,829 for 2010 and 891,698 for 2060—a population increase of 515,868 over the likely term of a contract.
- Assuming an average of 2.3 occupants per household, the estimated number of households by 2060 is 224,291.

### Estimates of Future Water Demand

- Estimates provided by Russell Levens of DNRC.
- The estimates are not based on extensive modeling; no consideration for location of growth within the basin.
- Rely on data contained in Mountain Water Company's PSC filing.
- Mountain Water Company serves residential, commercial, industrial, irrigation, and public customers such as schools, parks, and other public facilities—uses likely to be found in the future throughout the Clark Fork. While estimates are expressed on a household basis, they reflect water use by various customer classes.
- Because Hungry Horse water is expected to be used to offset impacts of future groundwater development to downstream water rights, estimates rely on water consumption by Mountain Water customers.
- Based on annual water consumption by Mountain Water Company residential customers of 0.24 acre-feet per household, annual water consumption associated with the Basin's 224,291 additional households in 2060 would be **54,264 acre-feet**.
- Based on annual water consumption by all Mountain Water uses of 0.29 acre-feet per household, annual water consumption associated with the Basin's 224,291 additional households in 2060 would be **62,071 acre-feet**.
- Including "unaccounted" water with all Mountain Water uses results in annual water consumption per household of 0.67 acre-feet, implying additional annual Basin water consumption in 2060 of **150,336 acre-feet**.
- Estimates based on other data fall within the range of the Mountain Water estimates.

***TU, HB 831 and Thompson River Lumber Co.***  
*By Anne W. Yates, Counsel*  
*Department of Natural Resources and Conservation*  
*March 10, 2008*

**I. *Trout Unlimited v. DNRC*, 2006 MT \_\_\_, 331 Mont. 483, 33 P.3d 224**

**A. Background**

- Case arose out of applications for ground water permits in the area of the Smith River.
- Within the Upper Missouri River Basin closure, Mont. Code Ann. § 85-2-343, passed in 1993.
- Upper Missouri River Basin closure allowed the Department to process and grant water right permit applications under certain exceptions including stock, domestic, non-consumptive, municipal purposes and ground water that was not “immediately or directly connected to surface water.”
  - Mont. Code Ann. §85-2-342(2)(2005) defined “ground water” to mean, “water that is beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water and that is not immediately or directly connected to surface water.”
  - The definition of “ground water” was part of the original basin closure passed in 1993.
  - Legislature did not define what “immediately or directly connected to surface water” meant.
- The Department interpreted “immediately or directed connected to surface water,” to mean ground water that was pulling surface water into the “cone-of-depression.” If the cone-of-depression created by pumping a well at the flow and volume requested caused surface water to be drawn into the well, then the application could not be processed, i.e. accepted in the first place.
- If the Department accepted a ground water application, an objector to the application could disagree with the Department’s decision and raise the issue at a hearing under Mont. Code Ann. §85-2-309.
- In July of 2003, Trout Unlimited, irrigators, and outfitters filed a lawsuit against the Department claiming in part that the manner in which the Department made the determination that an application could be accepted was improper and that the Department’s definition of “immediate or direct” connection was too narrow. The Department



and Trout Unlimited came to an agreement on how to determine if a ground water application could be accepted. The stipulation required that a Department hydrologist determine if an applicant had submitted sufficient data to determine if the cone-of-depression would or would not intercept surface water. The issue of the meaning of “immediate or direct” connection remained.

- District Court held that Trout Unlimited had failed to exhaust its administrative remedies before bringing an action in District Court. The District Court further concluded that the definitions and methods involved in processing water use applications lie within the Department’s discretion and deferred to the Department’s administration of the statutory provisions contained in Mon. Code Ann. §§85-2-342 and -343.

*B. Holding of TU*

- The Montana Supreme Court determined that the Department’s interpretation of “immediately or directly connected” failed to account for impacts to surface flow caused by the prestream capture of tributary groundwater. The Court stated that the Department’s interpretation recognized only immediate connections to surface flow caused by induced infiltration and ignored the less immediate, but no less direct, impact of the prestream capture of tributary groundwater.
- Basin closures of Teton River Basin, and the Jefferson/Madison Basins had the same wording as the Upper Missouri River Basin closure. The language of the Bitterroot and the Upper Clark Fork Basin closures was not the same as that in the Upper Missouri River Basin closure. Mont. Code Ann. §§85-2-330 (Teton), -336 (Clark Fork), -341 (Jefferson/Madison), and -343 (Upper Missouri), -344 (Bitterroot). The Upper Clark Fork Basin and Bitterroot Basin closures did not define ground water.

*C. Practical Result of TU*

- Virtual *de facto* closure of the Upper Missouri River Basin, Teton River Basin, and the Jefferson/Madison Basins to new ground water permits under the exception. It was very difficult to prove that a ground water well did not result in prestream capture of water on its way to a surface source. (Applicant had to provide

information that proved that the ground water they sought to use did not at any time capture prestream tributary ground water.)

- Approximately 28 applications were affected by TU and of those applications 21 were terminated.
- Because the wording of the closures in the Bitterroot and the Upper Clark Fork Basin closures was different, the Department did not apply TU to those basin closures.
- Affect of TU holding on prestream capture on the analysis of “adverse effect” under Mont. Code Ann. §85-2-311.

II. **House Bill 831 (2007 Legislature)** – generally, Mont. Code Ann. §§85-2-360 through 364.

- Passed in response to TU.
- Removed the “process” in “process or grant” language of the basin closure statutes.
- Removed the definition of “ground water” in the basin closure statutes, and thus, the issue of “immediately or directly connected.” Mont. Code Ann. §§85-2-329 (Teton), -340 (Jefferson/Madison), and -342 (Upper Missouri).
- Requires a “hydrogeologic assessment” for all ground water permit applications in closed basins. Mont. Code Ann. §85-2-360.
  - List of very specific requirements for the “hydrogeologic assessment.” Mont. Code Ann. §85-2-361. These analyses are site specific.
  - Purpose of the hydrogeologic assessment is to determine whether there will be “net depletion” to surface water sources.
  - Department adopted rules regarding net depletion. A.R.M. 36.12.102 AND 36.12.120, and there is information on the Department Water Rights Bureau website, [http://dnrc.mt.gov/wrd/water\\_rts/](http://dnrc.mt.gov/wrd/water_rts/).
- If the hydrogeologic assessment predicts that there will be a net depletion, the applicant must analyze whether the net depletion will cause an “adverse effect” on a prior appropriator.
  - Adverse effect is determination based, among other things, on the amount, location, and duration of the amount of net depletion. Mont. Code Ann. §85-2-360(5).
  - Applicant has an affirmative burden to prove lack of adverse effect to senior water appropriators under Mont. Code Ann. §85-2-311.

- If an applicant predicts in its hydrogeologic assessment a net depletion, the applicant shall offset the net depletion causing adverse effect through a mitigation plan or aquifer recharge plan. Mont. Code Ann. §85-2-362.
  - Mont. Code Ann. §85-2-362 has specific requirements for a mitigation plan and aquifer recharge plan.
  - Requires offset of only that amount of water necessary to prevent adverse effect.
- All of the related applications for permits (Mont. Code Ann. §85-2-311) and changes in appropriation (Mont. Code Ann. §85-2-402) must be submitted together under Mont. Code Ann. §85-2-363.
- Removed closed basin exceptions for “municipal use” and “municipal water supply” and replaced with an exception for “municipalities.” Mont. Code Ann. §§85-2-330, -341, -343, and -344.

### **III. *In the Matter of Application for Beneficial Water Use Permit No. 76N-30010429 by Thompson River Lumber Company (December 2006)***

#### **A. Background**

- Applicant Thompson River Lumber Company, Inc. (TRL) sought to appropriate 250 gallons per minute (gpm) (approx. 56 cfs) up to 400 acre-feet of water per year from the Clark Fork River. The proposed means of diversion was a pump. The proposed use was power generation. The proposed period of diversion and period of use is January 1 through December 31, inclusive.
- There were multiple objections to the Application.
- A contested case hearing under the Montana Administrative Procedure Act (Mont. Code Ann. Title 2 Chapter 4 Part 6) was held to determine whether TRL proved all of the criteria under Mont. Code Ann. §85-2-311, which includes, physical availability, legal availability, lack of adverse effect to a senior appropriator, adequate means of diversion, beneficial use of the water, and possessory interest in the place of use. Avista Corporation was the only objector to appear at hearing.
- The Application was denied in a Proposal for Decision for failure to prove legal availability and lack of adverse effect to a senior appropriator. The Department heard oral argument and considered written exceptions by the Parties on the Proposal for Decision. The Department denied the Application by Final Order December 2006.

*B. The Decision*

- TRL compared flow data to the DNRC water right records for the Clark Fork River for a distance of five miles downstream of the proposed point of diversion. The Hearing Examiner found that the largest water right in this river reach is Pacific Power & Light's (PPL) for 23,420 cfs for power generation at its Thompson Falls facility. TRL's project site is approximately five miles upstream of Thompson Falls and PPL's facility. Other water rights in combination with PPL in this reach resulted in combined rights of 1,467.7 cfs up to 72,771 acre-feet.
- Objector Avista has water rights of 50,000 cfs for Noxon Rapids Dam, approximately 40 miles downstream of the TRL's proposed project.
- TRL argued that water is available for appropriation at any time the flow in the Clark Fork River is more than 50,000 cfs or at any time Objector Avista's needs are less than 50,000 cfs.
- Objector Avista uses the flows of the Clark Fork River up to 50,000 cfs at the Noxon Rapids Dam to generate electricity and/or refill the reservoir behind the Noxon Rapids Dam to maintain elevation head. Objector Avista maintains records of flow through its turbine generators on a daily basis. There was no month during which flows, on average, exceed 50,000 cfs. From the same daily flow records Objector Avista compiled the number of days on average a year when flows of the Clark Fork River at the Noxon Rapids Dam exceed 50,000 cfs. – 16.1 (Avista) to 23.7 (TRL) days a year between April and July. (Variance resulted from use of differing periods of record.)
- TRL maintained that 250 gpm is not measurable at downstream diversions when compared to the total flow in the Clark Fork River and that it is futile to measure 250 gpm (.56 cfs) flowing in the River. TRL was willing to decrease diversions if a legitimate call on the source is made by a downstream senior appropriator.
- The Hearing Examiner found that Objector Avista has water rights for power generation, for reservoir storage and release for power generation and reregulation of the flows in the Clark Fork River, and to provide hydraulic head for power generation at its facility at Noxon Rapids Dam in the amount of 50,000 cfs. Water is spilled without use by Objector Avista at its Noxon Rapids generating facility only 16 to 24 days on the average each year. Objector Avista will be not be able to fully exercise its water rights when Clark Fork River flows are less than 50,000 cfs.
- The Hearing Examiner found that TRL had not proven water was legally available because an applicant must prove that at least in some years,

sufficient unreserved water will be physically available at the point of diversion to supply the amount requested throughout the period of appropriation, and that at least in some years, no legitimate calls for water will be made on him by a senior appropriator. TRL did not prove that no legitimate calls for water will be made on him by a senior appropriator in at least some years. TRL could expect calls for water for all but 16 to 24 days of each year.

- The Hearing Examiner found that TRL had failed to prove lack of adverse effect to a senior appropriator – Avista. Avista would not receive all water to which it is entitled at times the flows in the Clark Fork River do not exceed 50,000 cfs if the appropriation were granted. Flows exceed 50,000 cfs only 16-24 days per year. There was no evidence in this case that the 250 gpm that the Applicant seeks to appropriate would not reach the Noxon Rapids Dam.

*C. Practical Result of Thompson Lumber*

- The case is a strong precedent for adverse effect. The Department reviews applications on a case-by-case basis.
- Applicants need to address whether their proposed appropriation would result in depletion to Clark Fork River.
- Applicants may need to offset depletion to the Clark Fork with mitigation water.
- The Department is reviewing various options.

## Montana Code Annotated - 2007

<http://opi.mt.gov/MCASearch/Index.html>

**85-2-360. Ground water appropriation right in closed basins.** (1) An application for a ground water appropriation right in a basin closed pursuant to [85-2-330](#), [85-2-336](#), [85-2-341](#), [85-2-343](#), or [85-2-344](#) or administratively closed pursuant to [85-2-319](#) must be accompanied by a hydrogeologic assessment that has been conducted pursuant to [85-2-361](#) to predict whether the proposed appropriation right will result in a net depletion of surface water and must be accompanied by a plan as provided in [85-2-362](#), if necessary.

(2) If the hydrogeologic assessment conducted pursuant to [85-2-361](#) predicts that the proposed appropriation right will not result in a net depletion of surface water, the department shall proceed under the criteria provided in [85-2-311](#).

(3) (a) If the hydrogeologic assessment predicts that the proposed appropriation right will result in a net depletion of surface water, the applicant shall analyze whether the net depletion results in an adverse effect on a prior appropriator. If the applicant provides a correct and complete application, the department shall proceed to process the application as provided in [85-2-363](#).

(b) If the applicant has used the water for the purpose of conducting the hydrogeologic assessment, the applicant shall terminate the use of the water. Failure to terminate use of the water must result in a fine of not more than \$1,000 for each day of the violation.

(4) If the hydrogeologic assessment predicts that there will be net depletion as provided in subsection (3)(a), the department may proceed to process the application pursuant to [85-2-363](#) if, in addition to other applicable criteria, the applicant complies with [85-2-362](#).

(5) For the purposes of [85-2-360](#) through [85-2-362](#), the prediction of net depletion does not mean that an adverse effect on a prior appropriator will occur or if an adverse effect does occur that the entire amount of net depletion is the cause of the adverse effect. A determination of whether or not there is an adverse effect on a prior appropriator as the result of a new appropriation right is a determination that must be made by the department based on the amount, location, and duration of the amount of net depletion that causes the adverse effect relative to the historic beneficial use of the appropriation right that may be adversely affected.

(6) The priority date for an appropriation right that is granted to an entity whose permit application was returned after April 11, 2006, and before May 3, 2007, because of the department's interpretation of a court decision is the date of the initial application to the department.

**History:** En. Sec. 14, Ch. 391, L. 2007.

**85-2-361. Hydrogeologic assessment – definition – minimum requirements.** (1) (a) For the purposes of [85-2-360](#) through [85-2-362](#), “hydrogeologic assessment” means a

report for the project for or through which water will be put to beneficial use, the point of diversion, and the place of use that describes the geology, hydrogeologic environment, water quality with regard to the provisions of [75-5-410](#) and [85-2-364](#), and predicted net depletion, if any, including the timing of any net depletion, for surface water within the area described in subsection (2)(a)(i) within the closed basins that are subject to an appropriation right, including but not limited to rivers, streams, irrigation canals, or drains that might be affected by the new appropriation right and any predicted water quality changes that may result.

(b) In predicting net depletion of surface water from a proposed use, consideration must be given, at a minimum, to:

- (i) the actual amount diverted for like beneficial uses;
- (ii) any amounts that will likely be lost in conveyance, if any, and whether any lost amounts are lost to the system through evaporation or other means or whether those amounts are returned to the system through percolation or other means; and
- (iii) any return flows from the proposed use, including but not limited to any treated wastewater return flows if the treated wastewater that is considered effluent meets the requirements of [75-5-410](#) and [85-2-364](#).

(2) (a) A hydrogeologic assessment that will be used to predict net depletion of surface water resulting from a new appropriation right must include hydrogeologic data or a model developed by a hydrogeologist, a qualified scientist, or a qualified licensed professional engineer that incorporates for the new appropriation:

- (i) the area or estimated area of ground water that will be affected, not to exceed the boundaries of the drainage subdivisions established by the office of water data coordination, United States geological survey, and used by the water court, unless the applicant chooses to expand the boundaries;
- (ii) the geology in the area identified in subsection (2)(a)(i), including stratigraphy and structure;
- (iii) the parameters of the aquifer system within the area identified in subsection (2)(a)(i) to include, at a minimum, estimates for:
  - (A) the lateral and vertical extent of the aquifer;
  - (B) whether the aquifer is confined or unconfined;
  - (C) the effective hydraulic conductivity of the aquifer;
  - (D) transmissivity and storage coefficient related to the aquifer; and
  - (E) the estimated flow direction or directions of ground water and the rate of movement;
- (iv) the locations of surface waters within the area described in subsection (2)(a)(i) that are subject to an appropriation right, including but not limited to springs, creeks, streams, or rivers that may or may not show a net depletion;
- (v) evidence of water availability; and
- (vi) the locations of all wells or other sources of ground water of record within the area identified in subsection (2)(a)(i).

(b) A hydrogeologic assessment must also include a water quality report that includes:

- (i) the location of existing documented hazards that could be affected or exacerbated by the appropriation right, such as areas of subsidence, along with a plan to mitigate any conditions or impacts;
- (ii) other water quality information necessary to comply with [75-5-410](#) and [85-2-364](#);

and

(iii) a description of any water treatment method that will be used at the time of any type of injection or introduction of water to the aquifer to ensure compliance with [75-5-410](#) and [85-2-364](#) and the water quality laws under Title 75, chapter 5.

(3) The hydrogeologic assessment must include an analysis of whether the information required by subsection (2) predicts that there may be a net depletion of surface water in the area described in subsection (2)(a)(i) and the extent of the depletion, if any.

(4) The hydrogeologic assessment, the model if provided, the test well data, the monitoring well data, and other related information must be submitted to the department. The department shall submit this information to the bureau of mines and geology. The bureau of mines and geology shall ensure that information submitted pursuant to this section is entered into the ground water information center database as part of the ground water assessment program.

(5) An entity that has previously conducted some type of hydrogeologic assessment may submit the information from that assessment as the hydrogeologic assessment required by this section if the information meets the criteria and requirements of this section.

**History:** En. Sec. 15, Ch. 391, L. 2007.

**85-2-362. Aquifer recharge or mitigation plans in closed basins – minimum requirements.** (1) An applicant whose hydrogeologic assessment conducted pursuant to [85-2-361](#) predicts that there will be a net depletion of surface water shall offset the net depletion that results in the adverse effect through a mitigation plan or an aquifer recharge plan.

(2) A mitigation plan must include:

- (a) where and how the water in the plan will be put to beneficial use;
- (b) when and where, generally, water reallocated through exchange or substitution will be required;
- (c) the amount of water reallocated through exchange or substitution that is required;
- (d) how the proposed project or beneficial use for which the mitigation plan is required will be operated;
- (e) evidence that an application for a change in appropriation right, if necessary, has been submitted;
- (f) evidence of water availability; and
- (g) evidence of how the mitigation plan will offset the required amount of net depletion of surface water in a manner that will offset an adverse effect on a prior appropriator.

(3) An aquifer recharge plan must include:

- (a) evidence that the appropriate water quality related permits have been granted pursuant to Title 75, chapter 5, and pursuant to [75-5-410](#) and [85-2-364](#);
- (b) where and how the water in the plan will be put to beneficial use;
- (c) when and where, generally, water reallocated through exchange or substitution will be required;
- (d) the amount of water reallocated through exchange or substitution that is required;



(e) how the proposed project or beneficial use for which the aquifer recharge plan is required will be operated;

(f) evidence that an application for a change in appropriation right, if necessary, has been submitted;

(g) a description of the process by which water will be reintroduced to the aquifer;

(h) evidence of water availability; and

(i) evidence of how the aquifer recharge plan will offset the required amount of net depletion of surface water in a manner that will offset any adverse effect on a prior appropriator.

(4) The department may not require an applicant, through a mitigation plan or an aquifer recharge plan, to provide more water than the quantity needed to offset the adverse effects on a prior appropriator caused by the net depletion.

(5) An appropriation right that relies on a mitigation plan or aquifer recharge plan to offset net depletion of surface water that results in an adverse effect on a prior appropriator must be issued as a conditional permit that requires that the mitigation plan or aquifer recharge plan must be exercised when the appropriation right is exercised.

**History:** En. Sec. 16, Ch. 391, L. 2007.

**85-2-363. Process for combining decisions on ground water permit applications in closed basins.** (1) An applicant for a permit to appropriate ground water in a closed basin shall submit to the department a combined application consisting of a hydrogeologic assessment with an analysis of net depletion, a mitigation plan or aquifer recharge plan if required, an application for a beneficial water use permit or permits, and an application for a change in appropriation right or rights if necessary.

(2) The department shall review the application to determine if it is correct and complete under the process and requirements of [85-2-302](#).

(3) (a) Once an application has been determined to be correct and complete, the department shall prepare a notice and publish it as provided under [85-2-307](#).

(b) If no valid objection to the application is filed and the applicant proves that the criteria of [85-2-311](#) or [85-2-402](#), if necessary, have been satisfied, the application must be granted or approved in a modified form or upon terms, conditions, or limitations specified by the department.

(c) If no valid objection to the application is filed and the applicant has not proved that the criteria of [85-2-311](#) or [85-2-402](#), if necessary, have been satisfied, the application must be denied.

(d) If a valid objection to the application is filed, the department shall proceed to process the application pursuant to [85-2-308](#) through [85-2-311](#). If the applicant satisfies the criteria of [85-2-311](#) or [85-2-402](#), if necessary, and proves by a preponderance of the evidence that net depletion, if any, will not adversely affect a prior appropriator based on the applicant's mitigation plan or aquifer recharge plan, the department shall issue the permit.

**History:** En. Sec. 17, Ch. 391, L. 2007.

**85-2-364. Department permit coordination -- requirements for aquifer recharge plans.** To ensure that the department and the department of environmental quality are coordinating their respective permitting activities:

(1) an applicant for a new appropriation right pursuant to [85-2-360](#) that involves aquifer recharge shall provide the department with a copy of a relevant discharge permit if necessary; and

(2) the department may not grant a new appropriation right pursuant to [85-2-360](#) that involves aquifer recharge until the discharge permit, if necessary, has been obtained and presented to the department.

## **MONTANA CODE ANNOTATED 2005**

**MCA 85-2-342** (Emphasis added).

MONTANA CODE ANNOTATED

TITLE 85. WATER USE

CHAPTER 2. SURFACE WATER AND GROUND WATER

PART 3. APPROPRIATIONS, PERMITS, AND CERTIFICATES OF WATER RIGHTS

### **85-2-342. Definitions**

Unless the context requires otherwise, in **85-2-343** and this section, the following definitions apply:

(1) "Application" means an application for a beneficial water use permit pursuant to 85-2-302 or a state water reservation pursuant to 85-2-316.

(2) "Ground water" means water that is beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water and **that is not immediately or directly connected to surface water**.

(3) "Nonconsumptive use" means a beneficial use of water that does not cause a reduction in the source of supply and in which substantially all of the water returns without delay to the source of supply, causing little or no disruption in stream conditions.

(4) "Upper Missouri River basin" means the drainage area of the Missouri River and its tributaries above Morony dam.

History: En. Sec. 1, Ch. 385, L. 1993; amd. Sec. 16, Ch. 497, L. 1997.

**MCA 85-2-343 (Emphasis added).**

MONTANA CODE ANNOTATED

TITLE 85. WATER USE

CHAPTER 2. SURFACE WATER AND GROUND WATER

PART 3. APPROPRIATIONS, PERMITS, AND CERTIFICATES OF WATER RIGHTS

**85-2-343. Basin closure -- exceptions**

(1) As provided in 85-2-319 and subject to the provisions of subsection (2) of this section, the department may **not process or grant** an application for a permit to appropriate water or for a reservation to reserve water within the upper Missouri River basin until the final decrees have been issued in accordance with part 2 of this chapter for all of the subbasins of the upper Missouri River basin.

(2) The provisions of subsection (1) do not apply to:

- (a) an application for **a permit to appropriate ground water**;
- (b) an application for a permit to appropriate water for a nonconsumptive use;
- (c) an application for a permit to appropriate water for domestic, municipal, or stock use;
- (d) an application to store water during high spring flows;
- (e) an application for a permit to use water from the Muddy Creek drainage, which drains to the Sun River, if the proposed use of water will help control erosion in the Muddy Creek drainage; or
- (f) temporary emergency appropriations as provided for in 85-2-113(3).

History: En. Sec. 2, Ch. 385, L. 1993; amd. Sec. 455, Ch. 418, L. 1995; amd. Sec. 1, Ch. 441, L. 1997.

**DNRC NET DEPLETION ADMINISTRATIVE RULES**

**36.12.101 DEFINITIONS**

(37) "Net depletion" for the purposes of 85-2-360, MCA, means the calculated volume, rate, timing, and location of reductions to surface water resulting from a proposed groundwater appropriation that is not offset by the corresponding accretions to surface water by water that is not consumed and subsequently returns to the surface water.

(49) "Potentially affected area" for the purposes of 85-2-361, MCA, means, as referred to in basin closure rules and in the context of a hydrogeologic assessment, the area or estimated area where groundwater will be affected by a proposed project. The identified area is not required to exceed the boundaries of the drainage subdivisions established by the Office of Water Data Coordination, United States Geological Survey, and used by the Water Court, unless the applicant chooses to expand the boundaries.

**36.12.120 BASIN CLOSURE AREA EXCEPTIONS AND COMPLIANCE**

(5) An applicant must identify the potentially affected area and provide a map depicting that area.

(6) A net depletion analysis must be submitted with the water right application and must include but is not limited to analysis of the following factors within the potentially affected area:

(a) evidence addressing the hydraulic connection between the source aquifer and all surface water. Surface water means, in addition to ARM 36.12.101(64) and for the purposes of 85-2-360 through 85-2-362, MCA, includes but is not limited to irrigation canals and drains;

(b) evidence of propagation of drawdown from pumping a proposed well or other groundwater diversion and volume, rate, timing, and location of any resulting surface water effects;

(c) evidence of the comparison of the proposed flow rate and period of diversion to similar types of existing water uses;

(d) estimates of the monthly volume of water consumed by a proposed project through evaporation, evapotranspiration, and all other forms of consumption associated with the proposed project;

(e) an assessment of potential return flows to a source aquifer or surface water source and the volume, rate, timing, and location of return flows;

(f) in addition to ARM 36.12.101 (56) and for the purposes of 85-2-361, MCA, return flows includes but is not limited to any treated wastewater if the treated wastewater will be used as part of an aquifer recharge plan;

(g) the volume, rate, timing, and locations of accretions to surface water that is not consumed and subsequently returns to surface water; and

(h) a water balance table must be included that describes the monthly and total annual water balance for the proposal.

(7) An applicant must provide a list and map of the points of diversion of surface water appropriation rights and groundwater rights on record with the department that are located within the potentially affected area.

(8) Information required by the hydrogeologic assessment may not be sufficient to meet applicable criteria under 85-2-311, MCA, including but not limited to adverse effect to a prior appropriator. The applicant for a beneficial water use permit pursuant to 85-2-311, MCA, is responsible for providing sufficient evidence to meet all applicable criteria.

# Elements of Land Use Law

Prepared by JPIA/MACo Attorney Myra L. Shults  
For use at the 2008 Water Supply and Growth in the Clark Fork River Basin Conference  
March 11, 2008

There are **three aspects of land use law**: planning, zoning and subdivision.

## A. Planning.

The first aspect of land use law is planning, which means the law regarding planning boards and for growth policies, both of which are found in Title 76, Chapter 1, Montana Code Annotated.

The law about growth policies is found at §76-1-601, *et seq.*, MCA. First the Planning Board develops a growth policy, either on its own or with the help of a consultant, taking into consideration the elements in §76-1-601, MCA. Then the Planning Board holds a hearing following the notice procedure found in §76-1-602, MCA, and adopts a resolution in accordance with §76-1-603, MCA.

After the Planning Board makes its recommendation to the governing body, by resolution, the governing body then adopts a resolution of intention to adopt, adopt with revisions or reject the growth policy in accordance with §76-1-604(1), MCA.

**Section 76-1-601(3), MCA**, lists what a growth policy **must** include, but subsection (2) states the extent to which a growth policy addresses the elements in subsection (3) is at the full **discretion** of the governing body.

Of interest to this conference are the elements in subsection (3)(e) which include:

A strategy for development, maintenance and replacement of public infrastructure, including drinking water systems, wastewater treatment facilities, sewer systems . . .

**Subsection (4) of 76-1-601** lists the elements which **may** be addressed in a growth policy. Subsection (4)(c) was added in 2007 by Senate Bill 201. That bill encourages infrastructure plans which address future growth of a jurisdiction, and the public facilities addressed by the bill and the statute include

drinking water treatment and distribution facilities, sewer systems and wastewater treatment facilities.

If a jurisdiction adopts an infrastructure plan and zoning to go along with it, there are benefits for proposed subdivisions in that area.

## **B. Zoning**

The second aspect of land use law is zoning and there are three types:

### **1. Part 1, 101 or voluntary, petitioned county zoning**

This county zoning law is found in §76-2-101, *et seq.*, MCA. It is antiquated and difficult to understand and interpret. Procedures vary from county to county. Basically freeholders (landowners) in an area decide they want to be zoned, they designate the boundaries of the area of the zoning district, they provide some suggestions for what the zoning regulations will say and they collect signatures from the people who own land in the proposed district.

Once the petitioners believe they have signatures from at least 60% of the freeholders in the district, they take the petition to the Clerk and Recorder who has to determine how many total freeholders there are in the district, how many have petitioned to create the zoning district and then certifies the signatures and the percentage to the County Commissioners.

If the petition contains the signatures of at least 60% of the freeholders, the Board of County Commissioners should hold a properly noticed hearing, determine whether the requisite number of freeholders have signed the petition and create the district, provided the Commissioners are able to make the finding that the district is in the public interest or convenience. If the Commissioners do create the district, at the same time they either appoint a planning and zoning commission in accordance with §76-2-102, MCA, or assign the district to an existing planning and zoning commission.

Section 76-2-101(5), MCA, allows a protest. Counting the freeholders to determine whether 60% have signed a petition in favor of the zoning district is completely different from counting the protests to determine whether 50% of the titled property ownership is protesting.

A growth policy is **not required** for petitioned zoning.

## **2. Part 2, 201 or County Zoning**

Petitioned zoning has been around since 1953. The law has allowed county zoning, found in Part 2, beginning at §76-2-201, MCA, since 1963 but very few counties have adopted this kind of zoning--yet. The procedure set forth in §76-2-201, *et seq.*, MCA, is much easier to follow than that set forth in Part 1 zoning.

Zoning used to be unpopular. Now it is in the minds and on the lips of people in many places. In fact, over the next few years we will see a desire on the part of many interests to move toward zoning, to regulate land use, and away from subdivision regulations, which have historically been the tool to regulate land use.

A growth policy **must** be adopted before a county may enact county zoning. §76-2-203 (1) (a), MCA.

## **3. Municipal zoning**

Municipal zoning is found at §76-2-301, *et seq.*, MCA. Municipal zoning has been in existence since at least the 1920's and its constitutionality was affirmed by the United States Supreme Court in *The Village of Euclid, Ohio v. Ambler Realty Co.* (1926) 272 U.S. 365. Because zoning has been authorized in the law for municipalities in Montana since 1929, that concept is accepted in those jurisdictional areas and is well-developed.

A growth policy **must** be adopted before a municipality may zone. §76-2-304 (1)(a), MCA.

#### **4. Interim zoning**

Both Part 2 (County Zoning) and Part 3 (Municipal Zoning) allow for temporary zoning. It is authorized in §§76-2-206 and 76-2-306, MCA, in an emergency, for counties, and as an urgency measure for municipalities.

#### **5. Zoning and water**

Although there was an attempt in the 2007 legislative session to modernize the criteria for zoning regulations, that attempt failed. The criteria for county zoning is found in §76-2-203, MCA. The criteria for municipal zoning is found in §76-2-304, MCA. In both sections there is a subsection which says zoning is designed to “facilitate the adequate provision of . . . water, sewerage . . . and other public requirements.”

A reasonable conclusion is that there is zoning enabling legislation which allows not only the provision of water but also the protection of water through the “provision of sewerage.” The two are inextricably intertwined.

### **C. Subdivision law**

The third aspect of land use law is that regulating subdivisions.

**1. The Montana Subdivision and Platting Act (MSPA).** The Montana Subdivision and Platting Act (“Subdivision Act”) is found at §76-3-101, *et seq.*, MCA. It was enacted in 1973 and has been amended in almost every legislative session. This is the land use law with which most people are familiar.

The law requires all counties to have subdivision regulations and those regulations should be updated after each legislative session--especially after the 2005 legislative session when substantial procedural changes were made to the subdivision law. Model Subdivision Regulations were developed after the 2005 legislative session and are



posted on the MACo and MAP websites. The Community Technical Assistance Program (CTAP) at the Department of Commerce is working on a more current update.

If a proposed division of land is not exempt from subdivision review (the exemptions are found in Part 2 of the Subdivision Act) and it involves parcels of land less than 160 acres in size, it will be reviewed as either a minor subdivision (which contains five or fewer lots) or as a major subdivision (which contains more than five lots).

The Subdivision Act contains six parts—Part 1 contains general provisions—the purpose, definitions and remedies for violations. Part 2 contains exemptions. Part 3 is entitled “Land Transfers” and is an amalgam of provisions. Part 4 contains surveying provisions. Part 5 contains provisions relating to local subdivision regulations. Part 6 relates to the local review procedure and also contains §76-3-625, MCA, which is the provision enacted in 1995 that allows suits and appeals of subdivision decisions.

The purpose of the Subdivision Act is to divide land, but over the decades it has evolved into more than that because of the provisions found in Part 5 and Part 6.

Part 5 lists, in **§76-3-504, MCA**, the minimum contents of subdivision regulations. Included in that section are:

- **(1)(b)** the environmental assessment [§76-3-603 lists the requirements for the environmental assessment and, for a major subdivision, there must be a description of every body or stream of surface water that may be affected by the proposed subdivision together with available ground water information, as well as a community impact report containing a statement of anticipated needs of the proposed subdivision for water and sewage];
- **(1)(f)** a prohibition of subdivisions for building purposes in areas located within the floodway of a flood of 100-year frequency, or determined to be subject to flooding by the governing body;

- **(1)(g)(iii)** subject to the provisions of 76-3-511, water supply and sewage standards . . . that meet either the regulations adopted by DEQ for parcels less than 20 acres in size or standards in 76-3-604 and 76-3-622 for parcels more than 20 acres in size;
- **(1)(j)** addresses water rights; and
- **(1)(k) and (l)** addresses ditch easements.

Perhaps the most misunderstood section in Part 5 is **§76-3-511, MCA**. This code section should **only** apply to water and septic regulations when it states “a governing body may not adopt a regulation under 76-3-501 or 76-3-504(1)(f)(iii) [sic] that is more stringent than the comparable state regulations or guidelines that address the same circumstances.”

An examination of the language in Section 5 of Chapter 471 in 1995 clearly indicates the changes made by the bill are those issues addressed by DEQ and the Board of Environmental Review. Hopefully legislation in 2009 will make the cross-reference to 76-3-501 specific to subsection (7) and correct the cross-reference in 76-3-504 to subsection (1)(g).

The discussion draft LC 5004 for the Water Policy Interim Committee utilizes §76-3-511, MCA, as a vehicle for governing bodies to adopt regulations to encourage community water and septic systems. The trouble is, the procedure in that code section is so complicated most counties will not use that authority.

Part 6 of the Subdivision Act addresses the contents of the environmental assessment in §76-3-603, MCA, as previously discussed.

In 2005 Senate Bill 290 addressed water and sanitation issues which had arisen through litigation. Provisions from that bill are scattered throughout Part 6:

- **76-3-622** was a new code section in 2005. It contains the majority of Senate Bill 290 and is designed to require information about water and septic from the subdivider that the public or a

hydrologist can evaluate and testify about at a hearing on the subdivision;

- **76-3-504(1)(g)(iii)** was amended to address both parcels less than 20 acres in size and parcels more than 20 acres in size;
- **76-3-601(1)** requires the 76-3-622 information be submitted with the preliminary plat;
- **76-3-604(6)(a) and (b)** which address the public comment submitted on the 76-3-622 information;
- **76-3-604(7)(a)** which codifies a previously used procedure criticized by the Attorney General;
- **76-3-604(7)(b)** which adds authority to address water and septic for lots 20 acres or greater;
- **76-3-608(7)** which provides a governing body may use the 76-3-622 information for a conditional approval or denial only if it is based on existing subdivision, zoning or other regulations that the governing body has the authority to enforce.

**Section 76-3-608, MCA**, provides the criteria for local government review. During that review the governing body must issue written findings of fact that weigh what is known as the “primary criteria” found in subsection (3). Water and septic considerations may be found in the impacts on agricultural water user facilities, the natural environment and public health and safety.

The law provides, in subsection (4) that the governing body may require the subdivider to design the proposed subdivision to reasonably minimize potentially significant adverse impacts. Subsection (5)(a) states a governing body may not unreasonably restrict a landowner’s ability to develop land but recognizes that unmitigated impacts of a proposed development may be unacceptable and will preclude approval of the subdivision. Subsection (5)(b) goes on to say any mitigation requires consultation with the subdivider and consideration of the expressed preference of the subdivider.

As previously stated, §76-3-625, MCA, allows suits and appeals. Since that code section was enacted in 1995, many suits have been filed. An order in a district court case, *Neighbors Over the Aquifer, et al. v. Board of County Commissioners of Flathead County*, DV-05-179, has given counties and subdividers pause, because the judge found the environmental assessment inadequate and voided the conditional approval of a subdivision. Even though this is a district court case, the message to subdividers is: take environmental assessment requirements seriously; and the message to governing bodies is: make sure your local requirements for environmental assessments are satisfied.

## **2. Water and Septic and the MSPA**

### **a. Municipalities**

The author does not represent cities, but assumes most of them have municipal systems.

### **b. Counties**

#### **i. Water**

One would think a county could deny a subdivision if it didn't have adequate water, but this is not necessarily the case as the Department of Environmental Quality (DEQ) allows cisterns for individual lots, and water to be hauled.

#### **ii. §76-3-604(7), MCA**

This code section was added by Senate Bill 290 in 2005. It allows the governing body to defer to DEQ for lots less than 20 acres in size; and for lots 20 acres or more in size, the governing body may condition approval of the final plat upon the subdivider demonstrating that there is an adequate water source (could be a cistern) and at least one area for a septic system and a replacement drainfield for each lot.

### **iii. Denial of a subdivision based on water or septic**

Because the Supreme Court has ruled, in *Fielder, et al. v. Board of County Commissioners of Sanders County*, 337 Mont. 256, 162 P.3d 67, 2007 MT 118, that the “preliminary plat stage” mentioned in 49 Op. Att’y Gen. No. 7 (2001) extends to final plat, it is arguable that county commissioners could refuse to sign the final plat until the subdivider either obtains DEQ approval or complies with §76-3-604(7), MCA.

### **iv. Community Water and Septic Systems**

Arguably a county could require these systems if it complied with the procedure set forth in §76-3-511, MCA. That is the code section that allows a governing body to adopt a regulation more stringent than comparable state regulations or guidelines that address the same circumstances. The procedure is to have a public hearing and take public comment. Evidence needs to be provided that the proposed standard or requirement protects the public health or the environment; and that the standard or requirement can mitigate the harm to public health or the environment and is achievable under current technology. In addition the finding by the governing body :

- must reference information and peer-reviewed scientific studies in the record that form the basis of the governing body’s conclusion, and
- must include information from the hearing record regarding the costs to the regulated community that are directly attributable to the proposed local standard or requirement.

### **v. Conclusion**

Rather than making it easier for counties to require community systems, the existing law makes it difficult, if not impossible. Furthermore, without a state-wide hydrological study the science does not exist to justify requiring these systems.

### **3. The Sanitation in Subdivisions Act**

A chapter in Title 76 which is important to sanitarians and to the Department of Environmental Quality is found at § 76-4-101, *et seq.*, MCA. This area of the law is important to protect public health and safety when land is divided.

## Basin Water Use Projection: Tim Bryggman

### SUMMARY OF DEQ SUBDIVISION REVIEW PROCESS AND PLANNING FOR GROWTH

#### WATER SUPPLY AND GROWTH IN THE CLARK FORK RIVER BASIN

MARCH 11, 2008

*Presented by:*  
Eric Regensburger  
*Department of Environmental Quality*  
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### WATER - Quality

- Cannot exceed human health standards for pollutants (DEQ-7).
- If human health standards are exceeded, can treat water using point of use devices.
- Typically just test water for specific conductance, nitrate (as N), and total coliform bacteria (in existing water wells) unless indication of other pollutants (may add arsenic to this list in the future).

### COMPONENTS OF DEQ REVIEW

#### • 3 MAIN COMPONENTS

- Water
  - Plan and Spec. review
  - Quality, quantity and dependability
- Wastewater
  - Plan and Spec. review
  - Water quality (nondegradation)
- Storm water

### WATER – Quantity

- QUANTITY (ability to meet peak demands):
  - 10 gpm for 1 hr;
  - 6 gpm for 2 hrs; or
  - 4 gpm for 4 hours
  - Cisterns (storage) can be used if above flows cannot be met

### WATER – Plan and Spec

- Review for compliance with rules and technical circulars
  - Subdivision rules (ARM 17.36.101 et. seq.)
  - DEQ-1 (for community public systems)
  - DEQ-3 (multi-user and small public systems)
- Public systems reviewed by public water supply section

### WATER – Dependability

- DEPENDABILITY (long term availability):
  - “...At a minimum, the applicant shall provide evidence that the aquifer can supply, by itself or through recharge from surrounding geologic units, water to wells in an amount equal to the proposed ground water withdrawals” ARM 17.36.330(1)(c)
  - Or in other words: dependability is ability to use water in perpetuity from aquifer without “mining” the aquifer and possibly destroying the aquifer.
  - Of the three criteria, dependability is the most difficult to demonstrate.

## WASTEWATER – Plan and Spec

- Review for compliance with rules and technical circulars
  - Subdivision rules (ARM 17.36.101 et. seq.)
  - DEQ-2
  - DEQ-4
- Over 5,000 gpd design – reviewed by discharge permit section

## PLANNING

- Review for compliance with minimum standards
  - If minimum standards met, DEQ cannot require a different type of system (e.g. community systems vs. individual systems)
  - Difficulty/time with other regulatory processes (discharge permit or water rights) pushes development to individual systems
- Planning happens on the county level
- What gets approved by DEQ can require re-review at the county level

## WASTEWATER – Water Quality

- Review for compliance with water quality standards
  - Water Quality Act (Title 75, Chapter 5, MCA)
  - DEQ-7
  - Nondegradation rules (ARM 17.30.701 et. seq.)
    - Nitrate (mixing zone rules)
    - Phosphorus (travel time to surface water)
    - Pathogens

## STORMWATER

- Review for compliance with rules and technical circulars
  - Subdivision rules (ARM 17.36.101 et. seq.)
  - DEQ-8 (currently being updated)



## Decisions Regarding Water Rights: Bill Schultz

### WATER SUPPLY & GROWTH IN THE CLARK FORK BASIN March 11, 2008

WHO MAKES WHAT DECISION IN  
PLANNING FOR GROWTH  
Regarding Water Right Issues  
Bill Schultz, DNRC Water Resources,  
Missoula Regional Office

### WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

- DEVELOPMENT REQUIRES WATER
  - MUNICIPAL, DOMESTIC, LAWN & GARDEN IRRIGATION, COMMERCIAL, INDUSTRIAL USES
- THE RIGHT TO USE WATER REQUIRES WATER RIGHT
- DECISION AUTHORITY ON ISSUANCE OF WATER RIGHT PERMITS & CHANGES RESTS WITH MT DNRC WATER RESOURCES DIVISION

### WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

- DEVELOPMENT REQUIRES WATER
  - MUNICIPAL, DOMESTIC, LAWN & GARDEN IRRIGATION, COMMERCIAL, INDUSTRIAL USES

### WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

DNRC WATER RIGHT DECISIONS:

NO OBJECTIONS OR OBJECTIONS SETTLED:  
DNRC WRD **REGIONAL MANAGER**

OBJECTIONS LEADING TO A HEARING:  
DNRC **HEARINGS EXAMINER**

DNRC HEARING EXAMINER'S FINAL ORDER:  
MAY BE APPEALED TO **DISTRICT COURT**

### WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

- DEVELOPMENT REQUIRES WATER
  - MUNICIPAL, DOMESTIC, LAWN & GARDEN IRRIGATION, COMMERCIAL, INDUSTRIAL USES
- THE RIGHT TO USE WATER REQUIRES AUTHORIZATION – REFERRED TO AS A WATER RIGHT

### WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

#### CLARK FORK BASIN REGIONS BY COUNTY

HELENA REGIONAL OFFICE (406-444-6999)  
Jan Langel, Regional Manager  
**DEER LODGE, LEWIS&CLARK, POWELL, & SILVER BOW**

MISSOULA REGIONAL OFFICE (406-721-4284)  
Bill Schultz, Regional Manager  
**GRANITE, MINERAL, MISSOULA & RAVALLI**

KALISPELL REGIONAL OFFICE (406-752-2288)  
Terry Eccles, Regional Manager  
**FLATHEAD, LAKE, LINCOLN, & SANDERS**

## WHO MAKES WHAT DECISION IN PLANNING FOR GROWTH

### WATER RIGHT PERMIT & CHANGE AUTHORIZATION ISSUANCE CRITERIA ESTABLISHED IN STATUTE

85-2-311 MCA (PERMITS)

<http://data.opi.state.mt.us/bills/mca/85/2/85-2-311.htm>

85-2-402 MCA (CHANGES)

<http://data.opi.state.mt.us/bills/mca/85/2/85-2-402.htm>

## Criteria Assessment

- If **no** objections and,
- **Criteria in 85-2-311(permit) or 402 (change) are met**
  - Mitigation plan approved (closed basins)
  - Criteria Assessment is prepared to document information and evidence submitted by the applicant proving the criteria in 85-2-311 or 402 has been met
  - Permit or Change Authorization issued

## Legal Requirements for Permit Applications

- **MCA 85-2-311**

Applicant must prove the criteria:

- Water is physically available
- Water is legally available
- Water rights of prior appropriator will not be adversely affected
- Proposed means of diversion, construction & operation are adequate
- Proposed use is a beneficial use of water
- Possessory interest in the place of use
- Water quality of prior appropriator not affected (only if objection)

## Statement of Opinion

- If **no** objections and,
- **Evidence on criteria (85-2-311 or 402) not sufficient to prove by a preponderance of evidence**
  - Statement of Opinion is prepared to document information and evidence submitted by applicant on criteria that have been met
  - Identify and document why criteria not met
  - Propose to modify or deny
  - Applicant may request show-cause hearing within 30 days

## Legal Requirements for Change Applications

- **MCA 85-2-402**

Applicant must prove the criteria

- Proposed change will not adversely affect the use of existing water rights
- Proposed means of diversion, construction & operation are adequate
- Proposed use is a beneficial use of water
- Applicant has possessory interest in the place of use
- Water quality of an appropriator not adversely affected (only if objection)

## Hearing

- Objections received and copies sent to applicant
- Regional office may help with mitigation
- Application submitted to Hearings Unit for scheduling
- Examiner appointed and hearing date set
- Hearing held, Proposal for Decision issued
- Exceptions may be filed with a request for Oral Argument
- Oral Argument hearing held (if requested)
- Final Order issued
- Appeal to District Court an option

### **NOTICE OF COMPLETION OF GROUND WATER DEVELOPMENT**

- ✓ File Within 60 Days After Project Completion and Use of Water
- ✓ Ground Water Developments With a Maximum Use of 35 Gpm and up to 10 Acre-feet
- ✓ Includes Wells, Developed Springs, and Ground Water Pits
- ✓ Criteria:
  - Possessory Interest in Place of Use
  - Exclusive Rights in Ground Water Development Works or Can Obtain Written Consent of Person With Those Rights

<http://data.opi.state.mt.us/bills/mca/85/2/85-2-306.htm>

### **ANALYSIS OF PHYSICAL AVAILABILITY GROUNDWATER**

- STANDARDS LISTED IN NEW APPROPRIATION RULES @ 36.12.1703.
- SUBSTANTIAL CREDIBLE INFORMATION SHOWING WATER AVAILABLE FROM SOURCE AQUIFER IN THE AMOUNT REQUESTED.
  - EVALUATION OF DRAWDOWN FOR MAX PUMPING RATE AND VOLUME
  - PROJECTED DRAWDOWN COMPARED TO HEIGHT OF WATER COLUMN ABOVE PUMP
  - AQUIFER TEST REQUIREMENTS @ 36.12.121 APPLY
  - 24 HOUR TEST (<150 GPM & 50 AC FT); 72 HOUR (>)

### **Water Right Application Analysis**

HOW DOES DNRC ANALYZE PHYSICAL  
AND LEGAL AVAILABILITY OF WATER?

Reference: Water Right Bureau New  
Appropriation Rules (January 1, 2005)

[http://www.dnrc.mt.gov/wrd/water\\_rts/appro\\_rules\\_ref/newappropriations\\_rules\\_1-05.pdf](http://www.dnrc.mt.gov/wrd/water_rts/appro_rules_ref/newappropriations_rules_1-05.pdf)

### **ANALYSIS OF LEGAL AVAILABILITY SURFACE WATER & GROUNDWATER**

- STANDARDS LISTED IN NEW APPROPRIATION RULES @ 36.12.1705.
- COMPARE PHYSICAL WATER SUPPLY AT POD AND THE LEGAL DEMANDS (SENIOR WATER RIGHTS) WITHIN AREA OF POTENTIAL IMPACT.

### **ANALYSIS OF PHYSICAL AVAILABILITY SURFACE WATER**

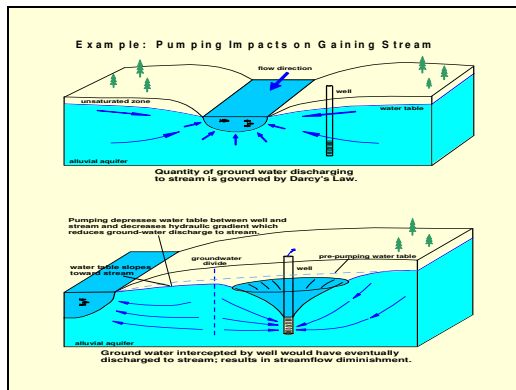
- STANDARDS LISTED IN NEW APPROPRIATION RULES @ 36.12.1702.
- SUBSTANTIAL CREDIBLE INFORMATION SHOWING WATER AVAILABLE AT REQUESTED FLOW RATE, VOLUME, & PERIOD OF USE.
  - STREAM GAGING RECORDS
  - ACCEPTED ESTIMATION METHODS WITH VALIDATION MEASUREMENTS
  - COLLECTION OF STREAM DISCHARGE DATA REQUIRED IF GAGING STATION DATA NOT AVAILABLE.

### **Water Right Application Analysis**

HOW DOES DNRC REGULATE  
INTERACTION BETWEEN SURFACE  
WATER & GROUNDWATER?

Reference: HB 831 Codified @ 85-2-360–369 MCA

<http://data.opi.state.mt.us/bills/mca/85/2/85-2-360.htm>



## Hydrogeologic Assessment Review

- Staff hydrogeologist reviews assessment
- All statutory and administrative rule requirements are met
- The information, data and analysis are substantial credible and conform to accepted scientific standards
- If not, hydrogeologist prepares discussion memo on issues needing further information, data or clarification

## HB 831 Groundwater Applications (closed basins)

- Hydrogeologic Assessment (85-2-361)
  - Analysis and Prediction of Net Depletion (ND) to surface water
  - Analysis of potential for Net Depletion to cause adverse affect
- Mitigation or Aquifer Recharge Plan, if ND results in adverse affect (85-2-362)

## Hydrogeologic Assessment Review

- HYDROGEOLOGIC ASSESSMENT & MITIGATION PLAN (CHANGE APPLICATION) FACTORS USED TO DETERMINE LEGAL AVAILABILITY & ADVERSE EFFECT CRITERIA.

## NET DEPLETION

- NET DEPLETION ANALYSIS REQUIREMENTS SPECIFIED IN 85-2-361 MCA & ADMINISTRATIVE RULE
- HYDROGEOLOGIC ASSESMENT REVIEWED BY DNRC TECHNICAL STAFF

## DEPT. OF NATURAL RESOURCES AND CONSERVAION

Water Resources Division  
1424 9<sup>TH</sup> Avenue  
PO Box 201601  
Helena, MT 59620-1601

WATER RESOURCE REGIONAL OFFICES

BILLINGS, BOZEMAN, LEWISTOWN, GLASGOW, HAVRE,  
KALISPELL, MISSOULA, HELENA

For Water Right research: Natural Resource Information System,  
State Library -- <http://nris.mt.gov/dnrc/waterrights>

### Permit/Change Timelines

- 180 days to Notify Applicant of Deficiencies (85-2-302(5) MCA)
- 90 days for Applicant to Respond to Deficiencies (85-2-302(6) MCA)
- Public Notice Period is 15 to 60 days. Generally 30 days (85-2-307(2)MCA)
- Decision to Grant, Deny or Condition an Application (85-2-310 MCA):
  - 120 Days if No Objection
  - 180 Days if Hearing Held
  - 60 Day Extension
  - Waiver of Decision Timelines

### CONCLUSIONS

- Decision to Grant, Deny, Condition Water Right Permit Applications & Change Authorizations - MT DNRC Water Resources Division
- Issuance Criteria Specified In Statute
- Meeting Criteria Requires Substantial Credible Technical Information
- Special Considerations in Closed Basins

### THANK YOU



## Implications of HB 831: Dr. Michael Nicklin

### IMPLICATIONS OF HOUSE BILL 831 A CONSULTANT'S PERSPECTIVE

By

Michael Nicklin, PhD, PE  
Nicklin Earth & Water, Inc.



#### What it requires?

- **Potentially Affected Area Definition.**  
"the area or estimated area of ground water that will be affected by a proposed project."  
*Generally this implies quantifying the zone of relative hydraulic depression or cone of influence from well(s) pumping.*

#### What is the intent of HB831?

- Address Trout Unlimited Smith River Supreme Court Decision
- Protect prior appropriators
- Provide methods to allow new ground-water appropriations by providing a means of offsetting projected adverse effects via mitigation and/or aquifer recharge

#### What it requires?

- **Quantify Net Depletions on Surface Water**  
  
The net depletion associated with any "potentially affected streams including irrigation ditches, springs, etc."

#### What it requires?

- Define Potentially Affected Area.
- Quantify Net Depletions on Surface Water
- Determine if Adverse Impacts may arise from the Net Depletions.
- Offset the Adverse Impacts.

#### Net Depletion vs Adverse Impact

- **Determine if the Net Depletion(s) causes an Adverse Impact.**
- In other words, will another more senior appropriator not be able to meet their beneficial use allocation as a result of the proposed action?
- If their allocation is unaffected, they are not adversely impacted, no mitigation or recharge required.
- If their allocation would be adversely affected, then there is an adverse impact then mitigation or recharge required to offset that adverse impact.

## Mitigation or Recharge

- ▣ Mitigation involves reallocated existing water rights most likely by retiring irrigated agricultural acreage and then leaving water either in a ditch or stream.
- ▣ Aquifer recharge generally involves recharging water into the underlying aquifer using methods such as infiltration basins, wells or ponds.

## How Realistic is it to Quantify Net Depletion?

- ▣ In simple systems can be done with reasonable reliability.
- ▣ In complex systems cannot be done meaningfully for the following reasons:
  - General lack of historical data;
  - General lack of knowledge of stream/ground-water interaction hydraulics;
  - Geologic complexity (and consequently hydraulic property variability), etc.

## Evaluation Requirements

- ▣ Hydrogeologic Evaluation
  - Conceptual setting defined.
  - Pumping test analyses.
  - Demonstration of physical availability
  - Definition of potentially affected area including legal availability
  - Report
- ▣ Was required prior to passage of HB 831.

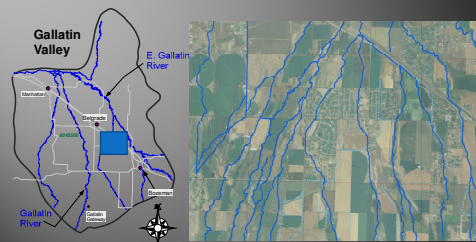
## Complex Conditions

- ▣ Multiple surface water features within the potentially affected area.
- ▣ Multilayer aquifer systems.
- ▣ Aquifer systems showing substantial spatial variability.
- ▣ Fracture flow systems.
- ▣ Geologic limitations (e.g., shallow strata with low permeability which would impede ability for recharge).
- ▣ Aquifer systems where mitigation is infeasible (e.g., no historic surface water use).
- ▣ Burden of proof for technical requirements is high in HB831 and probably **UNattainable in complex condition cases**.

## Net Depletion Evaluation The Feasibility

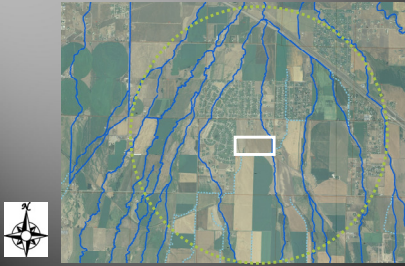
- ▣ Quantify impact of well pumping on all potentially affected surface waters.
- ▣ May be technically feasible in some cases and infeasible in others.
  - Simple case where no streams or a single stream is involved (more likely feasible).
  - Complex cases with several surface water features (streams, ditches and springs) [unlikely feasible].

## Example of Issues in Assessment

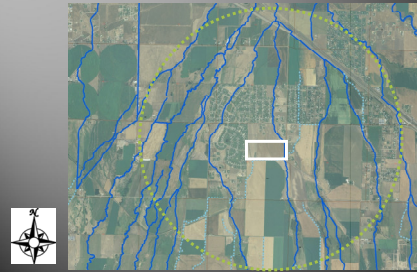




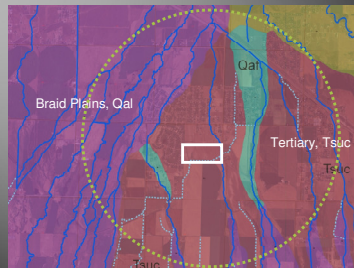
### Site Specific Example Surface Water Features Nearby



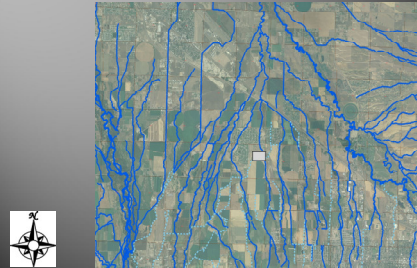
### Potential Simplification



### Site Specific Example Geologic Transitions



### Potential Simplification



### How Do We Address Complex Systems?

- ▣ Must simplify analysis.
- ▣ Model.
  - Some thoughts on simplification
  - Some thoughts on modeling.
  - Communicate extensively with DNRC technical staff.
- ▣ Determine mitigation/recharge methods if adverse impacts are defined.

### Recharge to Offset Adverse Impacts

- ▣ Requires a means of measurement and assurance that water is applied.
- ▣ Most logical means is an infiltration gallery (akin to a septic drain field).
- ▣ Geologic system properties must be favorable to allow sufficient infiltration to occur. Can be problematic in many geologic environments.
- ▣ Better at addressing non-irrigation season depletions vs surface water mitigation.
- ▣ However, will need to divert stream surface water during the irrigation season.



## Offsetting Adverse Impacts

Mitigation - leaving water in streams.

- ▣ Requires a means of measurement and assurance that water will actually be used for mitigation purposes.
- ▣ Does not address non-irrigation season depletions.
- ▣ Surface water may not have been historically used for irrigation purposes at the location where mitigation water is needed. An example where this is especially problematic is the Big Sky resort area of Montana.
- ▣ Do we have any flexibility as to where mitigation/aquifer recharge is performed?

## Recommendations

- ▣ It is most appropriate to conduct comprehensive watershed water budget evaluations at either a watershed or sub-watershed scale to determine just what the significance of water use is. This could also be performed at a government unit scale (say county or local planning area).
- ▣ Simplify the process and make it workable. Define a reasonable "potentially affected area." Relax the 0.01 foot cone-of-depression criterium.
- ▣ Also, if mitigation and recharge is going to be the current policy of DNRC no matter what, then why not simplify the analysis requirements? For instance, computations that combine both the demands and recharge augmentation could be made.

## What is/will be Some Consequences of HB831

- ▣ Projected to protect senior appropriators.
- ▣ Forces development to occur where the surface water irrigation has historically occurred. In effect, this will tend to focus development to the vicinity of streams or alluvial valleys where water is more likely plentiful for mitigation/recharge purposes.
- ▣ The process complexity and uncertainty of results will lead to developers attempting to go the exempt well route (a path of least resistance from a water supply perspective).
- ▣ Except in very unique situations, it will be nearly impossible to obtain beneficial use permits for agricultural well irrigation.

## Recommendations (continued)

- ▣ Consider evaluating the feasibility of basin or sub-basin mitigation/aquifer recharge strategies on a larger scale that can benefit more existing and potential users.

## What is/will be Some Consequences of HB831

- ▣ Create a water market economy which may price water out of the reach of most agricultural irrigators. Irrigation water in many instances may have been historically abandoned and the next water user in the appropriation sequence then benefitted.
- ▣ The market value of water is becoming an incentive for accelerating transfer of surface water rights from agricultural land use (and open space). My recent communications with a water rights attorney indicates this is already occurring at a fairly rapid pace in some areas of Montana. Several of these "entrepreneurs" or investors/water brokers just happened to be one-time ardent "supporters" of HB831 legislation.
- ▣ Aside from the above, a treasure trove of new tools for objectors to thwart the beneficial use application process has arisen.

## Gallatin Valley Study - Phase II

- ▣ One of the basic premises of HB831 (and other preceding proposed bills HB104 and HB138) is that all ground-water development leads to adverse impacts.
- ▣ In early 2007 NE&W completed a hydrologic study (water budget evaluation) in order to address the significance of exempt well ground-water use in the Gallatin Valley (Gallatin Valley Study - Phase I, 2007).
- ▣ One basic conclusion (amongst others) from the Phase I Study was that the cumulative effects of exempt wells from a water supply perspective is de minimus in terms of stream flow impacts and in terms of ground-water level changes in the Gallatin Valley.
- ▣ Note that similar observations to those obtained for the Gallatin Valley are being drawn by the Montana Bureau of Mines and Geology for additional watersheds elsewhere in Montana.

## Gallatin Valley Study – Phase II (continued)

- ▣ Gallatin Valley Phase II goes further by examining all ground water uses including public water supply, agricultural irrigation and exempt well uses.
- ▣ Rigorous analysis of stream flow in the valley is being performed to determine if long-term trends show evidence of “cumulative impacts.”
  - ▣ This includes evaluating all relevant hydrologic factors affecting stream flows including drought conditions, land-use transitions from subdivision growth, changing agricultural practices, etc., for the full historic period of record.
- ▣ Rigorous analysis of ground-water level trend data using procedures set forth by MBMG.
- ▣ Valley-wide ground-water model including linear programming for system representation and examining tradeoffs between surface water use and ground-water use.

## Some Preliminary Conclusions (continued)

- ▣ In summary, the obvious conclusion drawn from the study that unless there is an overall substantial and significant change in irrigated acreage in the valley, then it is unlikely that measureable changes will be observed in Gallatin River flows or ground-water levels in association with ground-water development.
- ▣ My preliminary assessments of alluvial valley watersheds in other high growth areas, including the Clark Fork Basin, is presently yielding similar conclusions to what we have gleaned for the Gallatin Valley.

## Gallatin Valley Study – Phase II (continued)

- ▣ Will include a separate report section on observations in other watersheds which possess high growth areas. The focus will be to ascertain if the findings of the Gallatin Valley study may be extrapolated to other watersheds.

## Final Thoughts

*“Water budgets provide a means for evaluating availability and sustainability of a water supply. A water budget simply states that the rate of change in water stored in an area, such as a watershed, is balanced by the rate at which water flows into and out of the area. An understanding of water budgets and underlying hydrologic processes provides a foundation for effective water-resource and environmental planning and management. Observed changes in water budgets of an area over time can be used to assess the effects of climate variability and human activities on water resources.”*

*[from “Water Budgets: Foundations for Effective Water-Resources and Environmental Management” by R. W. Healy, T.C. Winter, J. W. LeBaugh, and O. Lehm Frank, U.S. Geological Survey Circular 1308, 2007]*

## Some Phase II - Preliminary Conclusions

- ▣ No evidence of observable trends (e.g., declines) in the Gallatin River flows over the historic period of record resulting from ground-water development in the valley.
- ▣ No evidence of significant ground-water level changes over the historic period of record as a result of ground-water development in the valley.
- ▣ Total irrigated acreage has remained relatively constant over time even in the face of urban and rural subdivision growth. There has been an apparent substitution (or tradeoff) between surface water use and ground-water use in some areas of the valley which contributes to this constancy.
- ▣ Agricultural commodity growth has increased over time in the valley. This in part is likely related to improved technologies as well as transitions from flood to sprinkler irrigation.

## Final Thoughts

- ▣ Watershed/subwatershed system or jurisdictional level (e.g., County) evaluations should be performed to determine the significance or lack thereof of ground-water development before developing rules and policies. Quite frankly, this should have been done by the State of Montana before developing law such as HB831.
- ▣ It is possible that local scale issues can occur. However, it is noteworthy that local scale or project scale evaluations are already required as part of DEQ’s subdivision review process. They are also required as part of the beneficial use permitting process of DNRC.

## **SB 201 OPPORTUNITIES AND FACTS**

**Tim Davis**

SB 201 helps to give people more of a voice in how growth will impact them by creating a more predictable development process.

### **The three things SB 201 does do:**

1) SB 201 created a voluntary city and city-county planning process under 76-1-601(4)(c) designed to help local governments get ahead of the impacts of growth and the infrastructure necessary to service growth efficiently.

SB 201 does this by creating a detailed planning process that includes:

- a) Projecting future growth inside and adjacent to cities and towns;
- b) Drawing a land use map that shows where future growth will be guided and at what densities;
- c) Identifying existing infrastructure and services;
- d) Planning for the future infrastructure and services need to service future growth efficiently – local governments can choose how detailed they want this planning to be;
- e) Identifying how future growth could adversely impact:
  - a. threatened or endangered wildlife and critical wildlife habitat and corridors;
  - b. water available to agricultural water users and facilities;
  - c. the ability of public facilities, including schools, to safely and efficiently service current residents and future growth;
  - d. a local government's ability to provide adequate local services, including but not limited to emergency, fire, and police protection;
  - e. the safety of people and property due to threats to public health and safety, including but not limited to wildfire, flooding, erosion, water pollution, hazardous wildlife interactions, and traffic hazards;
  - f. natural resources, including but not limited to forest lands, mineral resources, streams, rivers, lakes, wetlands, and ground water; and
  - g. agricultural lands and agricultural production;
- f) And descriptions of zoning and subdivision regulations, and market incentives that will be used to implement the plan – this may include impact fees and local government investments.

2) SB 201 created a streamline subdivision review process under 76-3-616. Here is how the streamline subdivision review would work:

- a) If a county or a city chooses to follow the new and much more detailed planning process under 76-1-601(4)(c) that includes identifying potential adverse impacts of future growth,

And,

- b) The county or the city chooses to go through the public process to adopt zoning in accordance with the plan that avoids, significantly reduces, or mitigates adverse impacts identified in the planning process

Then

- c) Subdivisions in accordance that zoning get a streamline review. However, all subdivision proposals must still include a description of future public facilities and services, using maps and text, that are necessary to efficiently serve the projected development.

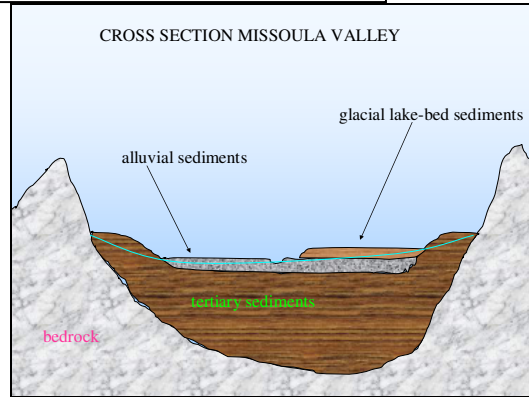
3) SB 201 created a funding source to help pay for planning. If a county or city commits in a resolution to undertaking SB 201 planning then that jurisdiction may collect the SB 201 per lot or unit planning fees authorized under 76-1-410.

For example, if a city or county has adopted 76-1-410 fees and that jurisdiction reviews 1,000 lots per year then the fee would generate at least \$50,000 in new funding for planning per year for that city or county. The city or county can then choose to use the money either to pay for an FTE, planning consultants, or save up the money generated by the fee for future planning.

**The three things SB 201 does not do:**

- 1) SB 201 does not make growth policies regulatory, since it does not change 76-1-605;
- 2) SB 201 does not force a jurisdiction to do planning or zoning – or to use the streamline subdivision review process.
- 3) SB 201 does not create any new regulatory powers.

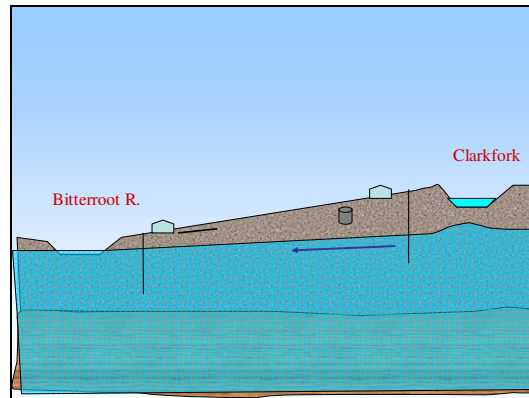
## Public Water and Sewer Systems: Jim Carlson



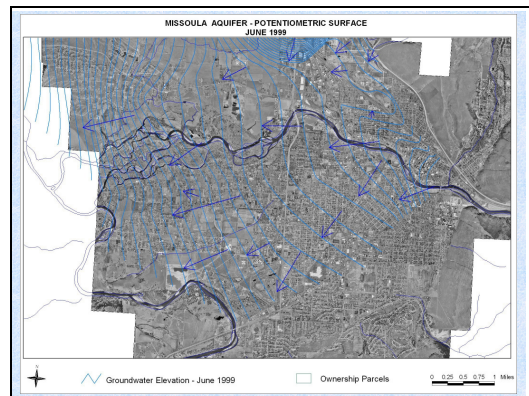
### Public Health Infra-Structure In Urban Settings

What is it and why is it needed?

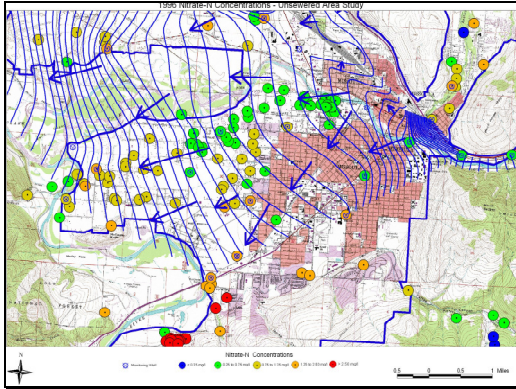
- Public Water Supplies
  - To provide safe, regulated, monitored drinking water
  - To provide alternate supply where problems exist
- Public sewer w/ high level treatment
  - To protect the aquifer as our sole water supply
  - To reduce impacts on the river
  - To provide for increased treatment when needed
- Paved Roads
  - To protect and improve air quality – PM-10
- Complete streets, trails, & parks
  - To help stem the obesity epidemic



### Missoula Valley Hydrology

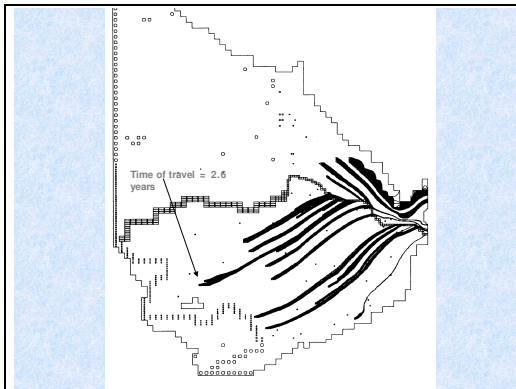






## Past and current ground water problems

- Gasoline in wells
- PERC in wells
- Concerns about drugs and drug metabolites in ground water
- Nitrates in wells



## Individual wells are often less than ideal.

- Often poorly placed
- Not monitored
- Sometimes poorly constructed
- No alternative supply when contaminated



What geologic structures separate Missoula's drinking water supply (Missoula Aquifer) from septic system effluent and other surface contamination?

- Answer: for most parts of the valley, nothing except dilution and depth.
- Conclusion: In an urban setting, it's a bad idea to use the same aquifer for wastewater disposal and drinking water supply

## What is consumptive use?

- Evaporation & transpiration
  - Other "uses" stay in the watershed and eventually end up back in the rivers (although the time of release to surface water is often changed)
  - Transpiration from irrigated lawns and agriculture is the major cause of anthropogenic "consumptive use"
  - As the number of residential units in western Montana grows we should lessen average water use on lawns

Are current Water Rights law  
& Sanitation In Subdivision law  
working at cross purposes?

- YES!

## Impacts

- Maintains market value of existing water rights
- Minimizes or eliminates consumptive use of water and land
- Discourages sprawl which lowers commute costs and greenhouse gas emissions

## HOW?

- Allowing a water right for individual wells while requiring a purchased existing right for public wells further encourages developers to use individual wells. (no investment on the part of developers, purchaser often pays for the well)
- Under the Sanitation and Subdivision Act individual water & septic requires 1 acre.
- Result: less safe water and a lot of lawn which results in a lot of consumptive water use.

## One Acre lot – lots of consumptive use



## How can we change water rights and subdivision administration to work in concert?

- Allow a 35 gpm use only on existing parcels
- Require newly subdivided parcels to obtain an existing right when individual wells are used
- Allow public wells to use water where consumptive use is minimal:
  - Making lot size is small e.g. 7200 sq feet
  - Requiring metering and payment for use by quantity
  - Penalties for over use
  - Xeriscaping is substantially used
  - Hard surface runoff is injected rather than allowed to runoff to surface water

## Public water & Public sewer allow for small lots and much less consumptive use



### One bit of good news!

- The legislative interim Committee on Water has drafted an amendment to the Subdivision and Platting Act that allows local government to require public water in new subdivisions

Clark Fork near Garrison  
Filamentous algae - *Cladophora*



### A Water Quality Problem in the Clark Fork

Orange St. - July 03'



Clark Fork at  
Gold Creek  
Filamentous  
Algae



Clark Fork at Huson  
Diatomaceous Algae





## Summer Nutrients - Percent of Samples meeting standards

Station	30%	30%	50%	70%
Silver Bow Creek ab WWTP	0%	0%	0%	0%
Clark Fork bl Warm Springs	6%	61%	6%	55%
Clark Fork ab Lil Blackfoot	4%	50%	9%	70%
Clark Fork bl Missoula	65%	37%	17%	4%
Clark Fork at Huson	90%	70%	54%	19%

1998: VNRP (Voluntary Nutrient Reduction Program) signed giving 10 years to achieve reductions resulting from promised actions.

Signatories: DEQ, EPA, Butte/Silverbow, City of Deerlodge, City of Missoula  
Missoula County, Missoula Health Board, Smurfit-Stone

## Impacts of excessive algae:



- Degrades aquatic habitats & alters invertebrate communities.
- Depletes dissolved oxygen supplies and contributes to documented low fish populations
- Modifies flows & increases sedimentation in algal beds

## Missoula County/City Commitments to the VNRP Agreement

- Address septic effluent impact on surface water pollution by:
- Offering incentives to connect to public sewer for existing facilities and new subdivisions;
- Connecting 50% of the existing 6,780 septic systems in the Missoula urban area to sewers;
- Continuing to connect existing septic systems to sewers in the Missoula area at a rate equivalent to the number of new septic systems.

## The Clark Fork & Water Quality Law

- Section 303(d) of the Federal Clean Water Act requires states to assess the condition of their waters to determine where water quality is **impaired (does not fully meet standards)** or threatened (is likely to violate standards in the near future).
- The **Clark Fork was listed as impaired** due to algae growth in 1988
- State and Federal law **requires** that **TMDLs** (total maximum daily load) be developed to return water quality to acceptable levels

## Evaluation of Unsewered Areas in Missoula Montana March 1996, Missoula Water Quality District

### Final Ordinal Ranking

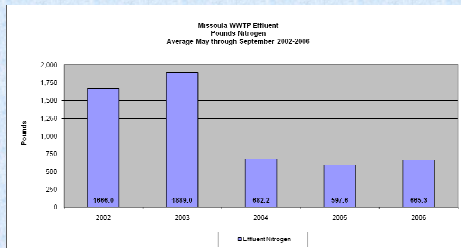
AREA	C U O N M I T T E S R C I A L	S D E P H T S I C Y	L O A D I N G	% S P E I T P S A G E	R E P L A C E M E N T	AVG. NO <sub>3</sub>	W D E L L S T Y	D A S T I C	F S I C A R K L E	R A N K
EAST HOLA	7	7	5	7	4	5	5	2	42	+3
EAST RESERVE	8	6	8	6	7	3	6	7	51	+1
LOLO	5	2	2	2	3	6	3	6	29	+6
HILLMAN ROAD	4	1	4	1	1	7	4	5	27	+7
RATTLE-SNAKE	2	3	6	4	8	8	2	3	36	+5
WEST RESERVE	3	4	7	3	6	4	8	8	43	+2
WEST RIVERSIDE	6	5	3	5	5	2	7	4	37	+4
WESTVIEW PARK	1	8	1	8	2	1	1	1	23	+8

## Present & Future Nutrient Removal at Treatment Plant

	Influent Jun-Sep 2003 mg/l	Effluent Current Jun-Sep mg/l	Effluent BNR Jun-Sep mg/l	Percent Removal Current Condition	Percent Removal BNR Condition
Total Phosphorus	5.55	3.42	0.7	38.4%	87.4%
Total Nitrogen	33.1	24.2	7.0	26.9%	78.8%



## Nitrogen Performance

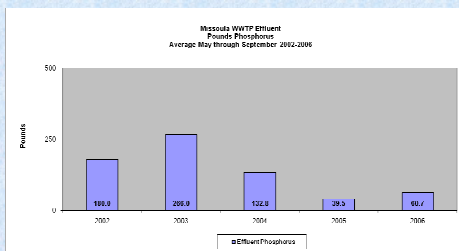


	Area		Population			
	Sq. Mi. 1990	Sq. Mi. 2006	1990	2000	2006	Increase 90-06
City	17	26	42,918	57,053	64,081	21,163
County	2,600	2,600	78,687	95,802	101,417	22,730
Outside City	2,583	2,574	35,769	38,749	37,336	1,567

### Population Percentages

	1990	2000	2006	49.3 %
City	54.5%	59.6%	63.2%	49.3 %
Outside City	45.5%	40.4%	36.8%	4.3 %

## Phosphorus Performance

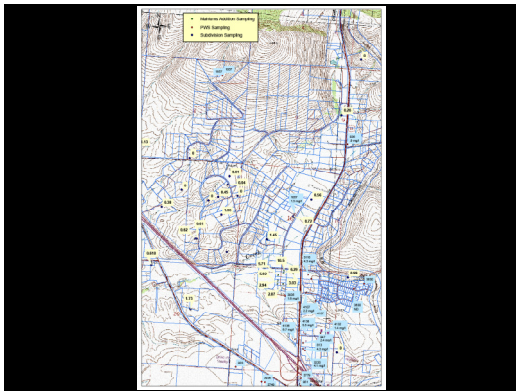


The Problem at the Wye

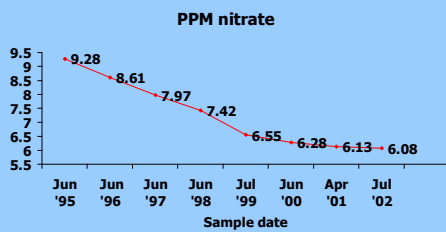
## Average Nitrate Values Wye vs other Missoula areas

Location	Nitrate (ppm)
West Riverside	.38
East Reserve	.55
West Reserve	.89
Rattlesnake	1.4
Wye	3.0
Peterbuilt	9.9
Private well	10.5

\* Standard for ground water and drinking water is 10.0 ppm



Linda Vista: Average Nitrate Value in 11 Wells  
Since Public Sewer Was Installed in 1995



**Bill Gardner**  
**Liberty Drilling & Pump Company, Inc.**

- I. Introduction and background in the industry both as an employee and owner of Liberty Drilling.
- II. Discuss how it "used to be" and changes made to how it is today.
- III. As a member of the National Ground Water Association and the Montana Water Well Drillers Association present their position on developing the ground water resource.
- IV. Summarize my personal feelings about the industry and the direction it is heading.